

**BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-281-S**

IN RE:)
)
Application of Palmetto Utilities, Inc.)
for adjustment of rates and charges)
for, and modification to certain terms)
and conditions related to the provision)
of sewer service.)
_____)

**REBUTTAL TESTIMONY OF
GARY E. WALSH**

Q. ARE YOU THE SAME GARY E. WALSH THAT PROVIDED DIRECT TESTIMONY IN THIS MATTER ON BEHALF OF THE APPLICANT, PALMETTO UTILITIES, INC.?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to portions of the testimony of Daniel P. Hunnell, II, on behalf of the Office of Regulatory Staff, or “ORS,” concerning the inclusion in rate base of the \$18 Million paid by the Company for facilities purchased from the City of Columbia that are used in the provision of service to customers of the Company and his proposal that the Company be required to adopt a decrement rider as a result of the Federal Tax Cuts and Jobs Act of 2017. I will also respond to the testimony of Charles E. Loy on behalf of ORS concerning the inclusion in rate base of the Company’s \$18 Million investment in the facilities it acquired from the City of Columbia. Finally, I will respond to Mr. Hunnell’s testimony regarding rate design and the assertions of customers that the Commission should impose a usage sensitive rate in this proceeding.

Q. WHAT IS YOUR RESPONSE TO MR. LOY’S TESTIMONY CONCERNING YOUR READING OF THE UNIFORM SYSTEM OF ACCOUNTS (USOA)?

A. Mr. Loy states that the fact that the City of Columbia “is not regulated does not make the USOA entirely inapplicable to the City.” He then goes on to make the unremarkable

1 assertions that the City provides sewer service and that its contract to sell facilities to PUI's
 2 predecessor in interest recites the fact that the City held "retail wastewater utility service
 3 rights." Neither of these facts alter – or even address – the definitions and language of the
 4 USOA that I have cited in my direct testimony, including Definition Number 40 that makes
 5 clear that it is only a public utility – which is one regulated by this Commission – that is
 6 subject to the USOA. I am also aware of no basis upon which the Commission could
 7 conclude that the USOA is partly applicable to the City, which Mr. Loy's phrase "not ...
 8 entirely inapplicable" suggests is the case.

9
 10 **Q. DO YOU AGREE WITH MR. LOY THAT THE FACILITIES PURCHASED FROM THE CITY**
 11 **CONSTITUTE AN "OPERATING UNIT OR SYSTEM" UNDER THE USOA?**

12 A. No, I do not for two reasons. First, to accept his assertion, the Commission would have to
 13 conclude that the asset purchase agreement he references amended the Commission's
 14 regulation adopting the USOA and the USOA itself. I do not believe that this contract did
 15 or even could do that. Secondly, Mr. Loy's analysis is flawed because it fails to recognize
 16 that the Company did not acquire a wastewater treatment system from the City, which is
 17 what makes a collection system operable. In other words, a collection system without some
 18 means of treatment and disposal is inoperable and of no value. The Company only
 19 purchased the collection facilities from the City and then made them part of an operable
 20 system after their acquisition by arranging for treatment, first at the City's Metro
 21 wastewater treatment plant and then at the Company's Spears Creek Regional Wastewater
 22 Treatment Plant.

23
 24 **Q. IS MR. LOY CORRECT IN CONTENDING YOUR READING OF THE USOA MEANS THAT "THE**
 25 **PRC PLANT IS NONUTILITY PLANT?"**

26 A. No, he is incorrect. Under my reading of the USOA, the facilities acquired by the Company
 27 from the City were not utility plant at the time of acquisition simply because the City of
 28 Columbia was not a utility as defined by the USOA. Under the USOA, property that is
 29 acquired by a public utility which is not already utility plant is required to be included in
 30 the public utility's plant accounts at the cost it incurs to acquire them. This is plainly set
 31 out in the second sentence of USOA Accounting Instruction 18.A, the very first provision

of the USOA that I address in my direct testimony but which neither Mr. Hunnell nor Mr. Loy address. I also note that Exhibit DPH-8 to Mr. Hunnell's testimony appears to be an excerpt of only USOA Accounting Instruction Number 21. For purposes of completeness and accuracy, I attach as my GW Rebuttal Exhibit "1" an excerpt from the USOA, specifically pages ten through fifty-one, which contains all of the Definitions and Accounting Instructions applicable to a Class A wastewater utility such as PUI.

Q. DO YOU AGREE WITH MR. LOY'S AND MR. HUNNELL'S CONTENTIONS THAT USOA ACCOUNTING INSTRUCTION 21 APPLIES IN THIS CASE?

A. No, I do not. As I have already noted, Mr. Loy fails to give effect to the definitions in the USOA which make clear that only an operating unit or system acquired from a public utility are required to be accounted for under the first sentence of Accounting Instruction 18.A and that, under the facts, the facilities acquired by the Company from the City are therefore required to be recorded at their cost – which was \$18 Million – as provided for in the second sentence of Accounting Instruction 18.A. Accounting Instruction 21 only applies to utility plant constituting an operating unit or system, which by definition does not include the facilities acquired from the City of Columbia. Mr. Hunnell's analysis suffers from the same error.

Q. SHOULD THE COMPANY HAVE RECORDED A UTILITY PLANT ACQUISITION ADJUSTMENT IN ACCOUNT 114 AS MR. HUNNELL CONTENDS?

A. No. A plant acquisition adjustment applies only where there is utility plant acquired that is required to be recorded as such. For the reasons I explained in my direct testimony and above, no utility plant was acquired from the City under the language of the USOA and it is therefore not required to be accounted for in Account 114.

Q. HAVE YOU REVIEWED THE COMMISSION ORDERS DISCUSSED BY MR. HUNNELL IN THIS PART OF HIS TESTIMONY AND DO YOU AGREE WITH HIS ANALYSIS OF THEM?

A. I have reviewed them and do not agree with his analysis for a number of reasons. While it may be that the Commission has not allowed recovery of amounts recorded in Account 114, none of the three orders he references support his position. To begin with, none of

1 the proceedings which resulted in these orders involved the acquisition of facilities by a
2 public utility from a municipality which, again, by definition is not a utility within the
3 meaning given that term by the USOA. Further, Order Number 2004-175 actually supports
4 my analysis and not Mr. Hunnell's since the treatise cited by the Commission at page 23
5 of that order, *The Process of Ratemaking* by Leonard Saul Goodman, describes application
6 of the "prevailing rule relating to the acquisition of utility plant previously used in a
7 regulated business." Here there is no utility plant that was used in a regulated business
8 since the City of Columbia is neither a utility within the definition of the USOA nor
9 regulated. Similarly, Order Number 2001-630 also supports my analysis and not Mr.
10 Hunnell's. That proceeding that did not involve a public utility or the USOA and the
11 Commission relied upon the testimony of its Staff accounting witness who equated
12 corporate "Operating Rights" to "the asset known as an acquisition adjustment." The
13 Commission accepted that witness's testimony that "acquisition adjustments can occur
14 whenever one regulated company purchases another and pays in excess of book value of
15 the assets being purchased." In this case, there was no purchase of assets of a regulated
16 company.

17
18 **Q. DO YOU HAVE ANY FURTHER COMMENT ON THIS PORTION OF MR. HUNNELL'S**
19 **TESTIMONY?**

20 A. Yes. I would also note that Order Number 2001-630 also supports the Company's
21 alternative position that, if the USOA does apply to the facilities it acquired from the City
22 of Columbia, then the Commission should allow a positive acquisition adjustment of \$17.1
23 Million. As the Commission witness stated in the proceeding that resulted in Order
24 Number 2001-630, if the Applicant can "convince the Commission that the purchase
25 benefits not only the Company, but also the customers," it can be allowed. As to the latter,
26 there is no dispute that the facilities purchased by the Company from the City are used and
27 useful. As to the former, Mr. Daday has laid out in great detail in his direct testimony how
28 the purchase of the City's facilities has resulted, and will continue to result, in tremendous
29 financial benefits to the customers previously served by the City.

30
31 **Q. AND WHAT ARE THESE FINANCIAL BENEFITS?**

1 A. To date they have been shielded from approximately \$9 Million in increased charges that
 2 would have been required to pay the City between March of 2013 and March of this year.
 3 And even if the Commission were to approve the rates requested by PUI on a three-year
 4 phase in basis, and the City did not increase its rate at all, these customers would be
 5 shielded from another \$3.9 Million in increased charges they otherwise would have had to
 6 pay to the City. This totals almost \$13 Million worth of benefits that these customers have
 7 or will receive and that figure could be higher if the Commission does not approve the full
 8 increase amount requested by PUI.

9
 10 **Q. ARE THERE ANY OTHER BENEFITS TO CUSTOMERS FROM THE PURCHASE OF THE CITY'S**
 11 **FACILITIES?**

12 A. Yes. These customers now have the ability to present their concerns to this Commission
 13 regarding rates and services which they lacked as City customers because they do not reside
 14 within the City and therefore cannot vote for the members of its governing body, City
 15 Council. And other customers of the Company benefit from the fact that there is now a
 16 larger customer base across which the Company's cost of services can be spread.

17
 18 **Q. IS THE ALLOWANCE OF AN ACQUISITION ADJUSTMENT IN RATE BASE IN SUCH**
 19 **CIRCUMSTANCES RECOGNIZED IN ANY OF THE LITERATURE PERTAINING TO**
 20 **ACCOUNTING UNDER THE USOA WITH WHICH YOU ARE FAMILIAR?**

21 A. Yes. In fact, in *The Process of Ratemaking*, which is the treatise relied upon in one of
 22 Commission orders cited by Mr. Hunnell, the author states at page 784 that

23 "[a] purchase price of assets in excess of book value may be included in rate base
 24 when one or more of the following criteria are met, a) the transaction was in the
 25 public interest, b) the purchase price was reasonable, c) the benefits to ratepayers
 26 were equal to or greater than the premium paid for the property and d) the
 27 transaction was conducted at arm's length. Thus, an acquisition adjustment may
 28 be included in rate base where the utility is able to show that the excess purchase
 29 price produced 'consumer benefits' (such as reduced rates or improved service),
 30 which are not adequately covered in the rate base or recognized in the company's
 31 prior earnings."

32
 33 In my opinion, PUI has satisfied not just one, but all four of these criteria. The Commission
 34 has already found the acquisition to be in the public interest by virtue of its order approving

1 it. In my opinion, the purchase price was reasonable given that the Company acquired
 2 service rights for some 11,370 sewer customers at a cost of about \$1,583 per customer. By
 3 contrast, as the Commission is aware from recent rate relief proceedings involving Blue
 4 Granite Water Company, including those conducted in Docket Number 2017-292-WS, that
 5 utility owned a wastewater collection, lagoon treatment, and disposal system serving 2,840
 6 customers that was condemned by the Town of Lexington and therefore removed from
 7 that company's rate base. *See*, Testimony of Matthew P. Schellinger, II, March 12, 2018,
 8 p. 12, l. 16 – p. 13, l.2, Docket Number 2017-292-WS. As the Commission is aware, a
 9 Lexington County jury found the fair value of that utility's sewer system serving to be
 10 \$7,250,000. *See* Transcript of Hearing, February 28, 2020, p. 957, ll. 3-5, Docket Number
 11 2019-290-WS. This fair market value yields a per customer value of approximately \$2,553
 12 per customer. Further, and as the Commission is also aware, the Town of Lexington took
 13 possession of that system prior to the jury's verdict and immediately disconnected the
 14 treatment and disposal facilities. *See* Commission Order Number 2018-345(A), issued May
 15 30, 2018, in Docket Number 2017-292-WS at p.20. Thus, using this jury valuation as a
 16 comparable, PUI paid about 38% less than the going per customer rate, which can be
 17 accounted for by the fact that no treatment facilities were acquired by it. I think the \$18
 18 Million purchase price was therefore reasonable. If, as Mr. Loy asserts on behalf of ORS,
 19 the amount paid by the Company in excess of "book value" is about \$16.5 Million, the
 20 benefits to rate payers equal or exceed that figure when one considers the savings its
 21 customers have realized from not being subject to the City's much higher rates which will
 22 continue to increase in the future and given the fact that the Company has earned no return
 23 on its \$18 Million investment since 2013. And, there is no issue about the transaction
 24 having been at arm's-length since it was subject to approval by the Commission and the
 25 governing body of the City.

26
 27 **Q. SHOULD THE COMMISSION ACCEPT MR. LOY'S AND MR. HUNNELL'S PROPOSED**
 28 **APPLICATION OF ACCOUNTING INSTRUCTION NUMBER 21 THE USOA?**

29 **A.** No, it should not. If ORS believes that the USOA Accounting Instruction Number 21
 30 should apply in these circumstances, it should seek to have the Commission amend its
 31 regulation 103-517 to modify the definitions and substantive provisions of the USOA so

1 that they will apply to facilities acquired from unregulated entities which are not investor-
2 owned utilities such as municipalities. ORS has the authority to make such a
3 recommendation to the Commission under S.C. Code Section 58-5-220. But since the
4 current regulation adopts the USOA, which contradicts the positions advanced in Mr. Loy's
5 testimony, it would be unfair to PUI for the Commission to now adopt Mr. Hunnell's and
6 Mr. Loy's recommendation on behalf of ORS.

7
8 **Q. WHAT IS YOUR RESPONSE TO MR. HUNNELL'S TESTIMONY REGARDING THE TAX CUTS**
9 **AND JOBS ACT OF 2017?**

10 A. I would simply say that he has not refuted the points made in my and Mr. Daday's direct
11 testimony regarding retroactive ratemaking and improper single expense ratemaking. As
12 the Commission is aware, ratemaking involves a forecasting of all of a utility's allowable
13 expenses based on historical figures adjusted for known and measurable events. At the
14 time the Company's current rates were set, the applicable Federal corporate income tax
15 rate was utilized in that forecast. Mr. Hunnell's analysis would have the Commission
16 retroactively invalidate a lawful rate and I believe this to be an improper recommendation
17 on ORS's part that the Commission should reject. He fails to address whether PUI is
18 earning in excess of its authorized return. And this is understandable given that ORS
19 witness Christina Seale's Exhibit CLS-1 – which reflects all of the accounting and rate
20 base adjustments that ORS proposes, some of which may be rejected by the Commission
21 – demonstrates the Company is today not earning in excess of its authorized return. Mr.
22 Hunnell is recommending to the Commission that it simply ignore increases in the
23 Company's other expenses that are accepted by Ms. Seale in an effort to further reduce the
24 Company's operating margin below the 15% authorized in the Company's last rate case.
25 And he recommends to the Commission that this \$2,001,430 amount be "flowed back to
26 customers" in circumstances where customers have no responsibility to pay increases in
27 other expenses over the corresponding period. The Commission should reject this
28 recommendation out of hand.

29
30 **Q. DO YOU AGREE WITH ORS THAT \$2,001,430 SHOULD BE "FLOWED BACK" TO**
31 **CUSTOMERS BY WAY OF THE DECREMENT RIDER THAT IT PROPOSES?**

1 A. No. ORS's recommendation to the Commission that it adopt this decrement rider, in
2 addition to violating the proscription against retroactive ratemaking, perfectly illustrates
3 the Company's point about this being an improper exercise in single expense
4 ratemaking. Even accepting ORS's other adjustments, the difference between the
5 Company's expenses, other than income taxes, approved in the last rate case and proposed
6 by ORS in this rate case is \$1,945,071. So, even though the Company's other expenses
7 which are included in its current rate have increased by at least that amount, ORS asserts
8 that the claimed decrease in another expense included in its current rate should be examined
9 and accounted for – retroactively – in isolation in this case. And, based on ORS's
10 recommendation that the Company be permitted an opportunity to earn \$990,000 in
11 additional annual revenues, the result is that PUI will, after having had an increase in other
12 expenses of at least \$1,945,071 and investing approximately \$11.4 Million in additional
13 capital since its last rate case, a decrement rider should be applied to essentially hold the
14 utility under water for more than a year. This is not only improper retroactive and single
15 expense ratemaking, but in my opinion results in confiscatory rates. The Commission
16 should reject ORS's recommendation for the establishment of a decrement rider.

17
18 **Q. WHAT TYPES OF RATE DESIGNS WERE BEING USED BY WASTEWATER UTILITIES WHEN**
19 **YOU WERE EMPLOYED BY THE COMMISSION?**

20 A. There were two primary designs. The most common was the flat-rate design in which all
21 customer classes were charged a flat rate with an equivalency rating being applicable to
22 commercial customers so as to account for differences between residential and commercial
23 customer demands on the utility's system. Single Family Equivalents were based upon the
24 Department of Health and Environmental Control, or DHEC, loading guidelines for
25 wastewater treatment plant construction which, at that time, was 400 gallons per day for a
26 single family. Today, it is 300 gallons per day. The other common design was the usage
27 sensitive rate design which featured a base facility charge designed to recover a portion of
28 the fixed costs of providing sewer collection, transportation, and treatment service and a
29 metered consumption charge based on a customer's metered water consumption data which
30 was available, generally without cost. In most of these instances metered water
31 consumption data was available to the utility because it also supplied water to the customer.

1 The arrangement that Palmetto of Richland County LLC, or “PRC,” had with the City of
2 Columbia to obtain customers’ water consumption data even after the sale of the City’s
3 assets was unique because it was a term and condition of the asset purchase agreement
4 submitted to the Commission in Docket No. 2012-273-S. The Commission found in the
5 Company’s last rate case that continuation of this usage sensitive rate design for that
6 portion of the Company’s customer base was no longer feasible.

7
8 **Q. WHAT FAMILIARITY DO YOU HAVE WITH CURRENTLY AUTHORIZED RATE DESIGNS?**

9 A. Subsequent to my retirement from the Commission, it has been necessary for me to remain
10 familiar with sewer utility rate designs, including the flat-rate design that is currently
11 approved for use by the Company, as part of the consulting I have performed for public
12 utilities providing sewer service. I have observed that, over the years, the Commission has
13 continued to approved flat-rate sewer designs for the vast majority of jurisdictional sewer
14 utilities. Single family equivalency ratings derived from the DHEC loading guidelines are
15 used in the rate designs approved for the larger of these utilities, which includes Palmetto
16 Utilities. By contrast, I am aware that there are only five of eighteen jurisdictional sewer
17 utilities charging a usage sensitive rate and all of them also provide metered water service
18 to their customers. The other thirteen, including PUI, all have flat rate designs. My
19 information source in this regard is the water utility and wastewater utility tariffed rates
20 that are compiled and published by ORS.

21
22 **Q. DOES THE COMPANY OPPOSE THE ORS RECOMMENDATION THAT IT BE REQUIRED TO**
23 **PERFORM A COSS RELATING TO USAGE SENSITIVE RATES FOR PRESENTATION IN ITS**
24 **NEXT GENERAL RATE CASE?**

25 A. No. As Mr. Daday states in his rebuttal testimony, the Company informed customers
26 during the “Town Hall” meetings it held regarding this rate case in January of this year that
27 it was not opposed to adoption of a usage sensitive rate design in a future proceeding and
28 committed that it would conduct such a study. That commitment was made prior to the
29 hearings in the rate relief proceeding involving Blue Granite Water Company which Mr.
30 Hunnell refers to in his direct testimony. As Mr. Daday indicates in his rebuttal testimony,

1 that commitment was conditioned upon the Company's ability to obtain accurate water
2 meter readings and recover the costs of doing so.

3
4 **Q. ARE THERE ANY DIFFERENCES BETWEEN PUI AND BLUE GRANITE WATER COMPANY**
5 **WHICH WOULD BEAR ON THE CONDUCT OF A COSS?**

6 A. There are several differences which I believe should be considered. The first is the fact
7 that PUI, unlike Blue Granite Water Company, provides no water service to its customers.
8 In fact, the Commission found in its Order Number 2019-290-WS issued April 9, 2020, in
9 Docket Number 2019-290-WS, that the utility had "water usage data for a little more than
10 fifty-three (53%) of its customers" per the testimony of an ORS witness. This is an
11 important difference as it means that Blue Granite Water Company already has current
12 water consumption data for more than half of its wastewater customer base and can more
13 easily perform a cost study using that data as a proxy for actual water consumption by the
14 other 47% of its customer base. Second, in requiring a COSS in that proceeding, the
15 Commission cited "continued complaints and issues" involving Blue Granite Water
16 Company, including "ongoing problems [with] wastewater infiltration and inflow," or
17 "I&I." However, according to Mr. Hunnell's testimony, PUI has no I&I problems, is in
18 compliance with all Commission regulations, and is in compliance with all DHEC
19 regulations. Finally, there was no evidence of record in that proceeding which would
20 support adoption of a usage sensitive rate on customers. To the contrary, the Commission
21 found that "Blue Granite does not have any other rate methodology at this time available
22 for its sewer service customers." Even though that is true in this case as well, the potential
23 impact a usage sensitive rate would have can be predicted to a certain extent just using the
24 City of Columbia's usage sensitive rate design as a proxy.

25
26 **Q. WOULD YOU PLEASE ELABORATE ON THAT LAST POINT?**

27 A. Yes. As Mr. Daday explained in some detail in his direct testimony, the PUI customers in
28 the area formerly served by the City of Columbia have realized significant financial
29 benefits from the fact that they were insulated from rate increases imposed by the City of
30 Columbia, which based on average consumption of 6,000 gallons per month, have been
31 about \$3 per month since 2013 when PUI acquired the City facilities. But his MD Exhibit

2 demonstrates more than just that as it shows for the five years these customers were charged a consumption based rate, the average monthly bill for a customer using 6,000 gallons of water per month was \$57.20. By contrast, these customers are currently only charged a flat rate of \$52.10 per month by PUI. So, it is apparent that simply using a consumption based rate is no assurance that all customers will be better off.

Q. IS THE ESTABLISHMENT OF A CONSUMPTION-BASED RATE DESIGN FEASIBLE IN THIS PROCEEDING?

A. It is not feasible for three principal reasons. First, the Company currently does not currently have access to accurate water consumption data from the City of Columbia as explained by Mr. Daday. Second, a change in the rate design now would deprive customers of the notice to which they are entitled regarding the rate that is proposed to be charged in this proceeding. Third, there is no way for the rate which would apply under a usage sensitive rate design to be determined by the Commission without the benefit of a COSS.

Q. WOULDN'T A USAGE SENSITIVE WASTEWATER RATE BASED ON METERED WATER CONSUMPTION BE THE MOST EFFICIENT AND THE MOST EQUITABLE MEANS BY WHICH TO CHARGE FOR THE COMPANY'S SEWER SERVICE?

In my opinion, it would not be for a number of reasons.

First, while billing based on water consumption may be the most efficient wastewater billing method for a utility that also provides water service to their customers, it is not an efficient way for Palmetto Utilities to bill its customers. In addition to the cost the Company would incur to acquire water consumption data from the City of Columbia – which Mr. Daday indicates would be approximately \$168,000 annually -- that would be passed on to ratepayers, issues with the accuracy of that data have arisen in the past and do not yet appear to be fully resolved. As the Commission noted in its order in the Company's last rate case, the Company experienced a significant number of problems billing its customers in the former City service area due to incorrect meter readings by the City which resulted in billing errors for sewer. Correcting these errors takes time and effort, creates confusion for the Company and customers, and sometimes results in delays

1 in the receipt of payment to the wastewater service, all of which further increases costs to
 2 the Company and ultimately customers. And the incorrect water meter readings by the
 3 City appeared to be a continuing problem when this proceeding was initiated as confirmed
 4 not only in local media reports,¹ but also on the City's own website which indicates that
 5 meters are being replaced over a three year period ending in 2021 in order to "respond[] to
 6 our customers' demands for more accurate bills."² Copies of these two documents are
 7 attached to my testimony as GW Rebuttal Exhibits 2 and 3, respectively. As Mr. Daday's
 8 rebuttal testimony reflects, the City meter replacement program is underway, but not yet
 9 completed in the Company's service area. So, currently, the Company has no access to its
 10 customers' water usage data from the City of Columbia that is accurate and will incur
 11 additional expense when it does have access to that information. These are the same
 12 circumstances that existed in the Company's last rate case where the Commission found a
 13 usage sensitive rate design to not be feasible.

14
 15 Second, I do not believe that a usage-sensitive rate based on water consumption is
 16 necessarily equitable to all customers as the testimony and protest letters of a limited
 17 number of customers assumes is the case. This is so given the potential for cross-
 18 subsidization in circumstances where the fixed costs associated with making wastewater
 19 collection, transportation, and treatment service available are not recovered in a base
 20 facilities charge. As the Commission noted at page 26 of its Order No. 2018-155 in the
 21 Company's last rate proceeding, the fact that some customers live alone does not change
 22 the requirement that the Company make available facilities and capacity to serve any
 23 number of persons who may occupy or visit a residence. In the absence of a base facilities
 24 charge that spreads all of these fixed costs out evenly, customers whose water consumption
 25 is comparatively low are benefitted to the detriment of other customers. The effect of this
 26 is apparent when one considers a usage sensitive wastewater rate without a fully allocated
 27 base facilities charge in view of water use statistics published by a variety of governmental
 28 and non-governmental sources and Federal census figures. These sources and figures show

¹ *High, Unpredictable Water Bills Anger Columbia residents. A Fix Is Coming, But Slowly.* *The State Newspaper*, December 4, 2019 (<https://www.thestate.com/news/local/article237994379.html>).

² *Customer Meter Upgrade Project* (<https://www.columbiascwater.net/meterupgrade/>).

1 that average water consumption for the average household in the Company's service area
2 is approximately 6,000 gallons per month.

3
4 **Q. WOULD YOU PLEASE ELABORATE?**

5 Yes. One example of the statistics underlying my opinion is found in a statement issued
6 by the United States Geological Survey, or "USGS," that "on average, each person uses
7 about 80-100 gallons of water per day, for indoor home uses."³ Another Federal
8 government agency, the United States Environmental Protection Agency, or "EPA," has
9 stated that the "average American family uses more than 300 gallons of water per day at
10 home" and that "roughly 70 percent of this use occurs indoors."⁴ The American Water
11 Works Association, or "AWWA," estimates daily domestic water use in the United States
12 at eighty-two gallons per person.⁵ The AWWA estimate is based on a USGS report using
13 combined public supply and self-supply, or well-water, data. In that same report, the USGS
14 found that annual residential water consumption in South Carolina for those served by a
15 public water supply source, such as the City of Columbia, is closer to one hundred gallons
16 per day per person.⁶ I have attached as GW Rebuttal Exhibit 4 copies of the pertinent
17 excerpts from the websites of USGS, EPA, AWWA from which this information was
18 derived as well as an excerpt from the USGS report. Household data compiled for the State
19 of South Carolina by the United States Census Bureau for 2014-2018 shows that the
20 average household in Richland County contains approximately 2.51 persons.⁷ I have
21 attached as GW Rebuttal Exhibit 5 to my testimony copies of this Census Bureau data.

22
23 Based upon the most conservative of the water consumption estimates of USGS, EPA and
24 AWWA, which is 80 gallons per person per day, and the most recent Census Bureau
25 statistics showing that the average occupancy of a residence in Richland County is 2.51
26 persons, it would be reasonable to assume that the current average residential water

³ *How Much Water Do I Use At Home Each Day?* (https://www.usgs.gov/special-topic/water-science-school/science/water-qa-how-much-water-do-i-use-home-each-day?qt-science_center_objects=0#qt-science_center_objects).

⁴ *How We Use Water/Water In Daily Life* (<https://www.epa.gov/watersense/how-we-use-water>).

⁵ *Water Use Statistics* (<https://drinktap.org/Water-Info/Water-Conservation/Water-Use-Statistics>).

⁶ *Estimated Use of Water in the United States in 2015* (<https://pubs.usgs.gov/circ/1441/circ1441.pdf>) at pp. 20,22.

⁷ <https://www.census.gov/quickfacts/fact/table/richlandcountysouthcarolina/HSD310218#HSD310218>.

1 consumption for the Company's customers is about 6,024 gallons per month. These
2 estimates are also consistent with the water consumption figures for 2017 for customers in
3 the area formerly served by the City of Columbia mentioned by Mr. Daday in his rebuttal
4 testimony. If a customer uses less than 6,024 gallons of water per month, and the
5 Company's rate is set solely by reference to water consumption without a fully allocated
6 base facilities charge, that customer will necessarily be subsidized by the average customer
7 The Commission recognized this dynamic in the Company's last rate case when it found
8 that a consumption-based sewer charge was not feasible.
9

10 **Q. CAN YOU PROVIDE AN EXAMPLE OF HOW THIS CROSS-SUBSIDIZATION WOULD OCCUR?**

11 A. I can and I would begin by addressing the two different types of costs that a wastewater
12 utility incurs, which are fixed costs and variable costs. Fixed costs are those which do not
13 change based upon the amount of output by a utility plant and include the cost of making
14 service capacity available, the cost of serving that is incurred with every customer
15 regardless of output such as billing, and general and administrative costs which are
16 unrelated to the amount of service provided to a given customer such as personnel costs,
17 insurance, etc. By contrast, variable costs are those which do change based upon the
18 amount of output by a utility plant, such as the amount of chemicals used to treat
19 wastewater.
20

21 Now, assume that eighty percent of the Company's cost of providing service is fixed, as
22 opposed to variable, cost. Then for every dollar's worth of the Company's revenue
23 requirement that is collected, only twenty percent of the rate charged is a function of the
24 amount of wastewater flow that is generated by a customer. Unless there is a fully allocated
25 base facilities charge which collects the eighty percent fixed cost from every customer
26 equally, a usage sensitive rate based on water consumption means that customers who
27 consume less water are escaping their pro rata share of fixed costs that are incurred by the
28 utility just to make the service available. This gives rise to the cross-subsidization I
29 mentioned.
30

31 **Q. IS AN EIGHTY PERCENT FIXED COST A REASONABLE ASSUMPTION?**

1 A. In my opinion, it is. I inquired of the Company regarding its ratio of fixed to variable costs
2 and it indicated to me that it estimated that ratio to be approximately 80/20. I believe this
3 estimate to be reasonable when considering the differences between the two types of costs.
4 Further, this ratio is consistent with that observed by the North Carolina Utilities
5 Commission in 2014 in a water and sewer rate case⁸ which found that “water utilities have
6 approximately a 40/60 fixed to variable expense ratio, whereas the ratio for sewer utilities
7 is 80/20 to 90/10.”
8

9 **Q. USAGE SENSITIVE RATE DESIGNS HAVE BEEN APPROVED BY THE COMMISSION FOR**
10 **WASTEWATER UTILITIES, HAVE THEY NOT?**

11 A. Yes. As I have noted above, the Commission has approved a usage sensitive wastewater
12 rate design for five such utilities. However, the rate design approved for each of these
13 utilities includes a base facilities charge. I have attached to my testimony as GW Rebuttal
14 Exhibit 6 the ORS schedule depicting the rates of each of these jurisdictional sewer utilities.
15 These base facilities charges for residential customers range from a high of \$28.00 to a low
16 of \$3.27 per month. However, none of these utilities is comparable to PUI in terms of size,
17 with only Kiawah Island Utility, Inc. being a Class A wastewater utility under the Uniform
18 Systems of Accounts adopted by the Commission and it had only approximately 3,379
19 wastewater customers at the time of its last rate proceeding. By contrast, PUI had some
20 27,905 customers as of the end of the proposed test year.
21

22 **Q. IF THE COMMISSION WERE TO ADOPT A USAGE SENSITIVE RATE STRUCTURE FOR THE**
23 **COMPANY, WHAT WOULD AN APPROPRIATE BASE FACILITIES CHARGE BE?**

24 A. There is no way for me to answer that question as rate design is a matter of discretion with
25 the Commission, subject only to the requirement that it employ measurable and objective
26 criteria in determining how to distribute the Company’s costs of service among the
27 customer base. As I have indicated, however, absent a fully-allocated base facilities charge
28 that recovers fixed costs evenly, customers with water consumption below the 6,024
29 gallons per month average would be subsidized as to fixed costs by customers who use at
30 or above that average and the level of that cross subsidization is in direct proportion to the

⁸*In the Matter of Application by Carolina Water Service, Inc.*, 2014 WL 991958 (2014).

1 amount of the fixed costs not recovered in a base facilities charge. Stated another way,
2 the lower the base facilities charge, the higher the percentage of cross subsidization. I
3 would note again that since the Company did not propose a usage sensitive rate with a base
4 facilities charge this calls into question whether customers who use more than the average
5 amount of water will have been accorded sufficient notice of a change in rate design which
6 could be to their detriment and would clearly be so in the absence of fully-allocated fixed
7 costs of service in a base facilities charge. The COSS PUI has committed to performing
8 should take this cross subsidization into account.
9

10 **Q. DO YOU HAVE ANY OTHER RECOMMENDATIONS WITH RESPECT TO ADDRESSING THE**
11 **CROSS SUBSIDIZATION ISSUE YOU HAVE IDENTIFIED?**

12 A. Yes. In addition to requiring that the COSS consider the fixed and variable costs of service
13 to address the potential for cross-subsidization, I recommend that the Commission direct
14 ORS to conduct a poll, or ballot, of all PUI customers to ascertain their preference with
15 respect to rate design using the revenue requirement approved by the Commission in this
16 case. This ballot should reflect base facilities charges at various levels determined by
17 reference to fixed cost allocation percentages ranging from zero to 90%. It should also
18 reflect a range of monthly water consumption levels between 1,000 and 10,000 gallons per
19 month. This would make the potential effects of a usage sensitive rate transparent to
20 customers in a variety of circumstances and allow ORS to make a recommendation to the
21 Commission with respect to whether, and under what conditions, ORS believes a usage
22 sensitive rate should be adopted by the Commission. It is important that ORS make this
23 recommendation since the Company is indifferent to the type of rate design used to
24 generate the Company's authorized revenue requirement as indicated in Mr. Daday's
25 testimony. The balloting concept, which has been applied in a variety of settings involving
26 public utilities and telephone utilities, including in Docket Numbers 96-235-W/S, 96-259-
27 W/S, 2002-404-C, 2008-223-C, and 2013-275-WS, has worked well in the past.
28

29 **Q. WHY DO YOU RECOMMEND THAT ORS CONDUCT THIS BALLOTING?**

30 A. For a number of reasons. First, I believe customers will more likely respond to a ballot
31 provided by ORS than one sent to them by the Company. In my experience, inserts into

1 customer bills unrelated to the bill itself often get discarded without being reviewed. Also,
2 I believe the Company has a fair number of customers who pay electronically and therefore
3 might ignore a separate mailing from the Company. Further, I believe that customers will
4 have more confidence in a poll conducted by ORS than the Company as the issue of
5 consumption based rates is clearly one of concern to the customers who have mentioned it
6 in their protest letters and at the virtual night hearing in March. Finally, if it were conducted
7 by the Company, it would create an expense that would need to be recovered in rates.
8 Having ORS conduct it avoids spreading that cost to customers – many of whom may not
9 want a consumption based rate.

10
11 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

12 **A.** Yes, it does.

UNIFORM SYSTEM OF ACCOUNTS FOR CLASS A WASTEWATER UTILITIES

1996



**NATIONAL ASSOCIATION OF
REGULATORY UTILITY COMMISSIONERS**

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DEFINITIONS

When used in this system of accounts:

1. "Accounts" means the accounts prescribed in this system of accounts.
2. "Actually issued," as applied to securities issued or assumed by the utility, means those which have been sold to bona fide purchasers for a valuable consideration, those issued as dividends on stock, and those which have been issued in accordance with contractual requirements direct to trustees of sinking funds.
3. "Actually outstanding," as applied to securities issued or assumed by the utility, means those which have been actually issued and are neither retired nor held by or for the utility; provided, however, that securities held by trustees shall be considered as actually outstanding.
4. "Amortization" means the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized.
5. A. "Associated companies" means companies or persons that, directly or indirectly, through one or more intermediaries, control, or are controlled by, or are under common control with, the accounting company.
B. "Control" (including the terms "controlling," "controlled by," and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a company, whether such power is exercised through one or more intermediary companies, or alone, or in conjunction with, or pursuant to an agreement, and whether such power is established through a majority or minority ownership or voting of securities, common directors, officers, or stockholders, voting trusts, associated companies, contract or any other direct or indirect means.
6. "Book cost" means the amount at which property is recorded in these accounts without deduction of related provisions for accrued depreciation, amortization, or for other purposes.
7. "Commission", unless otherwise indicated by the context, means the commission prescribing this system of accounts.
8. "Composite depreciation rate" is a percentage based on the weighted average service life of a number of units of plant, each of which may have a different individual life expectancy. Composite

DEFINITIONS

depreciation rates may be determined for (a) a single depreciable plant account, (b) a single rate for several depreciable accounts or (c) a single composite rate may be determined for all depreciable plant of the utility.

9. "Cost" means the amount of money actually paid for property or service. When the consideration given is other than cash, the value of such consideration shall be determined on a cash basis.
10. "Cost of removal" means the cost of demolishing, dismantling, tearing down or otherwise removing utility plant, including the cost of transportation and handling incidental thereto.
11. "Debt expense" means all expenses in connection with the issuance and initial sale of evidences of debt, such as fees for drafting mortgages and trust deeds; fees and taxes for issuing or recording evidences of debt; cost of engraving and printing bonds and certificates of indebtedness; fees paid trustees; specific costs of obtaining governmental authority; fees for legal services; fees and commissions paid underwriters, brokers, and salesmen or marketing such evidences of debt; fees and expenses of listing on exchanges; and other like costs.
12. "Depreciation", as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of providing service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirements of public authorities.
13. "Discount", as applied to the securities issued or assumed by the utility, means the excess of the par (stated value of no-par stocks) or face value of the securities plus interest or dividends accrued at the date of the sale over the cash value of the consideration received from their sale.
14. "Gross-up of contributions in aid of construction" is the method by which a utility extracts, from developers or others, a sum of money sufficient to pay all or a portion of the tax obligation due to the change in the federal tax law in 1987 which resulted in contributions made to utilities in aid of construction (CIAC) being considered ordinary income instead of contributions of capital. Because the sum extracted to pay the tax is also considered income subject to tax, the term tax-on-tax has been used to describe the additional sum of money that must be extracted in order to pay the tax on the initial amount.

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Common gross-up methods include the full gross-up method and the net present value method. Under the full gross-up method, a sum sufficient to meet the full tax obligation, including the tax-on-tax, is extracted. Under the net present value method, the sum extracted is the net present value of the estimated future stream of tax benefits resulting from the depreciation deductions for the contributed asset to be taken on the tax returns of the utility.

15. "Investment advances" means advances, represented by notes or by book accounts only, with respect to which it is mutually agreed or intended between the creditor or debtor that they shall be settled by the issuance of securities or shall not be subject to current settlement.
16. "Minor items of property" means the associated parts or items of which retirement units are composed.
17. "Multiple family dwelling" means a residential structure or group of structures which is capable of separately housing more than one family unit.
18. "Net salvage value" means the salvage value of property retired less the cost of removal.
19. "Nominally issued", as applied to securities issued or assumed by the utility means those which have been signed, certified, or otherwise executed, and placed with the proper officer for sale and delivery, or pledged, or otherwise placed in some special fund of the utility, but which have not been sold, or issued direct to trustees of sinking funds in accordance with contractual requirements.
20. "Nominally outstanding", as applied to securities issued or assumed by the utility, means those which, after being actually issued, have been reacquired by or for the utility under circumstances which require them to be considered as held alive and not retired; provided, however, that securities held by trustees shall be considered as actually outstanding.
21. "Original cost", as applied to utility plant, means the cost of such property to the person first devoting it to the public service.
22. "Person" means an individual, a corporation, a partnership, an association, a joint stock company, a business trust, or any organized group of persons whether incorporated or not, or any receiver or trustee.
23. "Plant sewer" means any sewer, pipe, aqueduct canal, or other conduit the primary purpose of which is to convey treatment plant fluids from one unit to another within the treatment plant.

DEFINITIONS

24. "Plant discharge sewers" means any sewer, pipe, aquaduct canal, or other conduit the primary purpose of which is to convey treatment plant effluent to its point of discharge.
25. "Premium", as applied to the securities issued or assumed by the utility, means the excess of the cash value of the consideration received from their sale over the sum of their par (stated value of no-par stocks) or face value and interest or dividends accrued at the date of sale.
26. "Property retired", as applied to utility plant, means property which has been removed, sold, abandoned, destroyed, or which for any cause has been permanently withdrawn from service.
27. "Reclaimed water" means water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a wastewater treatment plant.
28. "Regulatory Assets and Liabilities" are assets and liabilities that result from rate actions of regulatory agencies. Regulatory assets and liabilities arise from specific revenues, expenses, gains or losses that would have been included in determination of net income in one period under the general requirements of the Uniform System of Accounts but for it being probable that; 1) such items will be included in a different period(s) for purposes of developing the rates the utility is authorized to charge for its utility services; or 2) in the case of regulatory liabilities, that refunds to customers, not provided for in other accounts, will be required. Regulatory assets and liabilities can also be created in reconciling differences between the requirements of generally accepted accounting principles, regulatory practice and tax laws.
29. "Replacing" or "replacement", when not otherwise indicated in the context, means the construction or installation of utility plant in place of property of retired, together with the removal of the property retired.
30. "Research and development" means expenditures incurred by public utilities which represent research and development costs in the experimental or laboratory sense. The term includes generally all such costs incident to the development of an experimental or pilot model, a plant process, a product, a formula, an invention, or similar property, and the improvement of already existing property of the type mentioned.
31. "Retained earnings" means the accumulated net income of the utility less distributions to stockholders and transfers to other capital accounts, and other adjustments (See account 439 - Adjustments to Retained Earnings).

DEFINITIONS

32. "Retirement units" means those items of utility plant which, when retired, with or without replacement, are accounted for by crediting the original costs.
33. "Reuse" means the deliberate application of reclaimed water, in compliance with Federal and State environmental rules and regulations, for a beneficial purpose.
35. "Salvage value" means the amount received for property retired, less any expenses incurred in connection with the sale or in preparing the property for sale, or, if retained, the amount at which the material recoverable is chargeable to materials and supplies, or other appropriate account.
36. "Service life" means the time between the date utility plant is includible in utility plant in service, or utility plant leased to others, and the date of its retirement. If depreciation is accounted for on a production basis rather than on a time basis, then service life should be measured in terms of the appropriate unit of production.
37. "Service value" means the difference between the original cost and net salvage value of utility plant.
38. "Straight-line remaining life method", as applied to depreciation accounting, means the plan under which the service value of property is charged to operating expenses (and to clearing accounts if used), and credited to the accumulated depreciation account through equal annual charges during its service life. "Remaining life" implies that estimates of future life and salvage will be reexamined periodically and that depreciation rates will be corrected to reflect any changes in these estimates.
39. "Straight-line method" as applied to depreciation accounting means the plan under which the service value of property is charged to operating expenses (and to clearing accounts if used), and credited to the accumulated depreciation account through equal annual charges during its service life. Estimates of the service life and salvage will be reexamined periodically and depreciation rates will be corrected to reflect any changes in the estimates.
40. "Utility", as used herein and when not otherwise indicated in the context, means any public utility to which this system of accounts is applicable.

ACCOUNTING INSTRUCTIONS

1. General - Classification of Utilities

A. For the purpose of applying the system of accounts prescribed by the Commission, wastewater utilities are divided into three classes, as follows:

Class A - Utilities having annual wastewater operating revenues of \$1,000,000 or more.

Class B - Utilities having annual wastewater operating revenues of \$200,000 or more but less than \$1,000,000.

Class C - Utilities having annual wastewater operating revenues of less than \$200,000.

B. This system of accounts applies to Class A utilities. The system of accounts applicable to Class B and C utilities are issued separately.

C. The class to which any utility belongs shall originally be determined by the average of its annual wastewater operating revenues for the last three consecutive years. Subsequent changes in classification shall be made when the average annual wastewater operating revenues for the three immediately preceding years exceed the upper limit or are less than the lower limit, of the annual wastewater operating revenues of the classification previously applicable to the utility. For a utility with both water and wastewater operations, the classification shall be based on the operation with the highest annual revenues.

2. General - Records

A. Each utility shall keep its books of account, and all other books, records, and memoranda which support the entries in such books of accounts so as to be able to furnish readily full information as to any item included in any account. Each entry shall be supported by such detailed information as will permit a ready identification, analysis, and verification of all facts relevant thereto.

B. The books and records referred to herein include not only accounting records in a limited technical sense, but all other records, such as minute books, stock books, reports, correspondence, memoranda, etc., which may be useful in developing the history of, or facts regarding, any transaction.

C. No utility shall destroy any such books or records unless the destruction thereof is permitted by rules and regulations of the Commission.

ACCOUNTING INSTRUCTIONS

D. In addition to prescribed accounts, clearing accounts, temporary or experimental accounts, and subdivisions of any account, may be kept, provided the integrity of the prescribed accounts is not impaired.

E. All amounts included in the accounts prescribed herein for utility plant and operating expenses shall be just and reasonable and any payments or accruals by the utility in excess of just and reasonable charges shall be included in account 426 - Miscellaneous Nonutility Expenses.

F. The arrangement or sequence of the accounts prescribed herein shall not be controlling as to the arrangement or sequence in report forms which may prescribed by the Commission.

3. General - Numbering System

A. The account numbering scheme used herein consists of a system of three digit numbers as follows:

100-199	Assets and Other Debits
200-299	Equity, Liabilities and Other Credits
350-389	Wastewater Plant Accounts
400-434	Income Accounts
435-439	Retained Earnings Accounts
521-549	Wastewater Operating Revenue Accounts
700-799	Wastewater Operation and Maintenance Expenses

B. The utility plant and operation and maintenance expense accounts are further subdivided using a suffix of one decimal place as explained in following instructions.

C. In certain instances, numbers have been skipped in order to allow for possible later expansion or to permit better coordination with the numbering system for other utility departments.

D. The numbers prefixed to account titles are solely for convenience of reference and are not a part of the titles. Each utility may adopt such scheme of account numbers as it deems appropriate; provided, however, that it shall keep readily available a list of the account numbers and subdivisions of accounts which it uses and a reconciliation of such numbers and subdivisions with the account numbers and titles provided herein. Further, the records must be kept to permit classification or summarization of each accounting period according to the prescribed accounts.

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4. General - Accounting Period

Each utility shall keep its books on a monthly basis so that for each month all transactions applicable thereto, as nearly as may be ascertained, shall be entered in the books of the utility. Amounts applicable or assignable to specific utility departments shall be segregated monthly. Each utility shall close its books at the end of each calendar year unless otherwise authorized by the Commission.

5. General - Submittal of Questions

To maintain uniformity of accounting, utilities shall submit questions of doubtful interpretation to the Commission for consideration and decision.

6. General - "Item" Lists

List of "items" appearing in the texts of the accounts or elsewhere herein are for the purpose of more clearly indicating the application of the prescribed accounting. The lists are intended to be representative, but not exhaustive. The appearance of an item in a list warrants the inclusion of the item in the account mentioned only when the text of the account also indicates inclusion inasmuch as the same item frequently appears in more than one list. The proper entry in each instance must be determined by the texts of the accounts.

7. General - Extraordinary Items

It is the intent that net income shall reflect all items of profit and loss during the period with the sole exception of prior period adjustments as described in Accounting Instruction B. Those items related to the effects of events and transactions which have occurred during the period and which are not typical or customary business activities of the company shall be considered extraordinary items. Commission approval must be obtained to treat an item as extraordinary. Such request must be accompanied by complete detailed information (See accounts 433 and 434).

8. General - Prior Period Items

A. All prior period adjustments to retained earnings shall be approved by the Commission. Generally the only type of transactions which will be considered as a prior period adjustment are:

ACCOUNTING INSTRUCTIONS

(1) Correction of an error in the financial statements of a prior period; or

(2) Adjustments that result from realization of income tax benefits of preacquisition loss carry forwards of purchased subsidiaries.

B. Prior period adjustments, when approved, shall be charged or credited to account 439 - Adjustments to Retained Earnings, and are not considered in income of the period. Prior period adjustments shall be recorded net of all state and federal income tax effects.

C. Changes in depreciation or amortization estimates or methods are considered changes in accounting estimates rather than accounting errors; and therefore are not subject to prior period adjustments. Any adjustments made to the accumulated amortization or depreciation balances of the utility due to a change in estimate or method shall be offset by a charge or credit to either: an income account; account 186.2 - Other Deferred Debits; or account 253 - Other Deferred Credits, as directed by the Commission.

9. General - Unaudited Items

Whenever a financial statement is required by the Commission, if it is known that a transaction has occurred which affects the accounts but the amount involved in the transaction and its effect upon the accounts cannot be determined with absolute accuracy, then the amount shall be estimated and such estimated amount included in the proper accounts. A complete description of the transactions shall accompany the financial statement. Utilities are not required to anticipate minor items which would not appreciably affect the accounts.

10. General - Allocation of Salaries and Expenses of Employees

Charges to utility plant or to a salaries expense account shall be based upon the actual time engaged in either plant construction or providing operation services. In the event actual time spent in the various activities is not available or practicable, salaries should be allocated upon the basis of a study of the time engaged during a representative period. Charges should not be made to the accounts based upon estimates or in an arbitrary fashion.

11. General - Payroll Distribution

Underlying accounting data shall be maintained so that the distribution of the costs of labor charged to the various accounts will be available. The utility may utilize clearing accounts in its accounting process; however, the use of clearing accounts does

ACCOUNTING INSTRUCTIONS

not relieve the utility from the responsibility of providing a distribution of the costs of labor or from being able to substantiate its labor charged with sufficient source documents.

12. General - Operating Reserves

Accretions to operating reserve accounts made by charges to operating expenses shall not exceed a reasonable provision for the expense. Material balances in such reserve accounts shall not be diverted from the purpose for which provided, unless the permission of the Commission is first obtained.

13. General - Records for Each Plant

Separate records shall be maintained by utility plant accounts of the book cost of each plant owned including additions by the utility to plant leased from others and of the cost of operating and maintaining each plant owned or operated.

14. General - Accounting for Other Departments

If the utility also operates other utility departments, such as electric, water, gas, etc., it shall keep such accounts for the other departments as may be prescribed by proper authority and in the absence of prescribed accounts, it shall keep such accounts as are proper or necessary to reflect the results of operating each other department.

15. General - Transactions with Associated Companies

Each utility shall keep its accounts and records so as to be able to furnish accurately and expeditiously statements of all transactions with associated companies. The statements may be required to show the general nature of the transactions, the amounts involved therein and the amounts included in each account prescribed herein with respect to such transactions. Transactions with associated companies shall be recorded in the appropriate accounts for transactions of the same nature. Nothing herein contained, however, shall be construed as restraining the utility from subdividing accounts for the purposes of recording separately transactions with associated companies.

16. General - Contingent Assets and Liabilities

Contingent assets represent a possible source of value to the utility contingent upon the fulfillment of conditions regarded as uncertain. Contingent liabilities include items which may under certain conditions become obligations of the utility but which are neither direct nor assumed liabilities at the date of the balance

ACCOUNTING INSTRUCTIONS

sheet. The utility shall be prepared to give a complete statement of material contingent assets and liabilities (including cumulative dividends on preference stock) in its annual report and at such other times as may be requested by the Commission.

17. Utility Plant - Classification of Utility Plant at Effective Date of System of Accounts

A. The utility plant accounts provided herein are substantially the same in context as those contained in the prior system of accounts, except that some changes have been made in classification, rearrangement and regrouping of certain accounts. A few account titles have been changed. Subject to these changes, the balances in the various plant accounts, as determined under the prior system of accounts, shall be carried forward. Any remaining balance of plant which has not yet been classified, pursuant to the requirements of the prior system, shall be classified in accordance with the following instructions.

B. The cost to the utility of its unclassified plant shall be ascertained by analysis of the utility's records. Adjustments shall not be made to record in utility plant accounts amounts previously charged to operating expenses or to income deductions in accordance with the uniform system of accounts in effect at the time or in accordance with the discretion of management as exercised under a uniform system of accounts, or under accounting practices previously followed.

C. The detailed utility plant accounts (351 to 398, inclusive) shall be stated on the basis of cost to the utility of plant constructed by it and the original cost, estimated if not known, of plant acquired as an operating unit or system. The difference between the original cost, as above, and the cost to the utility of utility plant after giving effect to any accumulated depreciation or amortization, and contributions in aid of construction applicable to the property acquired, if recorded by the accounting utility at the time of acquisition, shall be recorded in account 114 - Utility Plant Acquisition Adjustments. The original cost utility plant shall be determined by analysis of the utility's records or those of predecessor vendor companies with respect to utility plant previously acquired as operating units or systems and the difference between the original cost so determined, less accumulated depreciation and amortization and contributions in aid of construction recorded by the accounting utility, and the cost to the utility, with necessary adjustments for retirements for date of acquisition, shall be entered in account 114 - Utility Plant Acquisition Adjustments. Any difference between the cost of

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utility plant and its book cost, when not properly includible in other accounts, shall be recorded in account 116 - Other Utility Plant Adjustments.

18. Utility Plant - To be Recorded at Cost

A. All amounts included in the accounts for utility plant acquired as an operating unit or system, shall be stated at the cost incurred by the person who first devoted the property to utility service. All other utility plant shall be included in the accounts at the cost incurred by the utility except as otherwise provided in the texts of the intangible plant accounts. Where the term "cost" is used in the detailed plant accounts, it shall have the meaning stated in this paragraph (See Definition 9).

B. When the consideration given for property is other than cash, the value of such consideration shall be determined on a cash basis. In the entry recording such transaction, the actual consideration shall be described with sufficient particularity to identify it. The utility shall be prepared to furnish the Commission the particulars of its determination of the cash value of the consideration if other than cash.

C. When property is purchased under a plan involving deferred payments, no charge shall be made to the utility plant accounts for interest, insurance, or other expenditures occasioned solely by such form of payment.

D. Utility plant accounts shall be charged with construction costs (estimated, if not known) of the utility plant contributed by others or constructed by the utility using contributed cash or its equivalent. For contributed utility plant, the accumulated depreciation or amortization account shall be charged with the estimated amount of depreciation or amortization applicable to the property at the time it was contributed to the utility. Account 271 - Contributions in Aid of Construction shall be credited with the net of the amounts charged to the plant and the accumulated depreciation or amortization accounts. For plant constructed using contributed cash or its equivalent, account 271 - Contributions in Aid of Construction shall be credited with the amount of the cash or its equivalent contribution.

19. Utility Plant - Components of Construction Cost

The cost of construction properly includible in the utility plant accounts shall include, where applicable, the direct and overhead costs as listed and defined hereunder:

(1) "Contract work" includes amounts paid for work performed under contract by other companies, firms, or individuals, costs incident to the award of such contracts, and inspection of such

ACCOUNTING INSTRUCTIONS

work.

(2) "Labor" includes the pay and expenses of employees of the utility engaged on construction work, and related workmen's compensation insurance, payroll taxes and similar items of expense. It does not include the pay and expenses of employees which are distributed to construction through clearing accounts nor the pay and expenses included in other items hereunder.

(3) "Materials and supplies" includes the purchase price at the point of free delivery plus customs duties, excise taxes, the cost of inspection, loading and transportation, the related stores expenses, and the cost of fabricated materials from the utility's shop. In determining the cost of materials and supplies used for construction, proper allowance shall be made for unused materials and supplies, for materials recovered from temporary structures used in performing the work involved, and for discounts allowed and realized in the purchase of materials and supplies.

Note: -- The cost of individual items of equipment of less than \$750 or of short life, including small portable tools and implements, shall not be charged to utility plant accounts unless the correctness of the accounting therefor is verified by current inventories. The cost shall be charged to the appropriate operating expense or clearing accounts, according to the use of such items, or, if such items are consumed directly in construction work, the cost shall be included as part of the cost of the construction unit.

(4) "Transportation" includes the cost of transporting employees, materials and supplies, tools, purchased equipment, and other work equipment (when not under own power) to and from points of construction. It includes amounts paid to others as well as the cost of operating the utility's own transportation equipment (See item 5 following).

(5) "Special machine service" includes the cost of labor (optional), materials and supplies, depreciation, and other expenses incurred in the maintenance, operation and use of special machines, such as pile drivers, derricks, ditchers, scrapers, material unloaders, and other labor saving machines; also expenditures for rental, maintenance and operation of machines of others. It does not include the cost of small tools and other individual items of small value or short life which are included in the cost of materials and supplies (See item 3, above). When a particular construction job requires the use for an extended period of time of special machines, transportation or other equipment, the net book cost thereof, less the appraised or salvage value at time of release from the job, shall be included in the cost of construction.

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(6) "Shop service" includes the proportion of the expense of the utility's shop department assignable to construction work except that the cost of fabricated materials from the utility's shop shall be included in "materials and supplies".

(7) "Protection" includes the cost of protecting the utility's property from fire or other casualties and the cost of preventing damages to others, or to the property of others, including payments for discovery or extinguishment of fires, cost of apprehending and prosecuting incendiaries, witness fees in relation thereto, amounts paid to municipalities and others for fire protection, and other analogous items of expenditures in connection with construction work.

(8) "Injuries and damages" includes expenditures or losses in connection with construction work on account of injuries to persons and damages to the property of others; also the cost of investigation of and defense against actions for such injuries and damages. Insurance recovered or recoverable on account of compensation paid for injuries to persons incident to construction shall be credited to the account or accounts to which such compensation is charged. Insurance recovered or recoverable on account of property damages incident to construction shall be credited to the account or accounts charged with the cost of damages.

(9) "Privileges and permits" includes payments for and expenses incurred in securing temporary privileges, permits or rights in connection with construction work, such as for the use of private or public property, streets, or highways, but it does not include rents, or amounts chargeable as franchises (See account 302 - Franchises).

(10) "Rents" includes amounts paid for the use of construction quarters and office space occupied by construction forces and amounts properly includible in construction costs for such facilities jointly used.

(11) "Engineering and supervision" includes the portion of the pay and expenses of engineers, surveyors, draftsmen, inspectors, superintendents and their assistants applicable to construction work.

(12) "General administration capitalized" includes the portion of the pay and expenses of the general officers and administrative and general expenses applicable to construction work.

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(13) "Engineering services" includes amounts paid to other companies, firms or individuals engaged by the utility to plan, design, prepare estimates, supervise, inspect, or give general advice and assistance in connection with construction work.

(14) "Insurance" includes premiums paid or amounts provided or reserved as self-insurance for the protection against loss and damages in connection with construction, by fire or other casualty, injuries to or death of persons other than employees, damages to property of others, defalcations of employees and agents, and the nonperformance of contractual obligations of others. It does not include workmen's compensation or similar insurance on employees included as "labor" in item 2, above.

(15) "Legal expenditures" includes the general legal expenditures incurred in connection with construction and the court and legal costs directly related thereto, other than legal expenses included in protection, item 7, and in injuries and damages, item 8.

(16) "Taxes" includes taxes on physical property (including land) during the period of construction and other taxes properly includible in construction costs before the facilities become available for service.

(17) "Allowance for funds used during construction" includes the net cost for the period of construction of borrowed funds used for construction purposes and a reasonable rate on other funds when so used. No allowance for funds used during construction shall be included in these accounts upon expenditures for construction projects which have been abandoned.

Note:--When only a part of a plant or project is placed operation or is completed and ready for service but the construction work as a whole is incomplete, that part of the cost of the property placed in operation, or ready for service, shall be treated as "Utility Plant in Service" and allowance for funds used during construction thereon as a charge to construction shall cease. Allowance for funds used during construction on that part of the cost of the plant which is incomplete may be continued as a charge to construction until such time as it is placed in operation or is ready for service, except as limited in item 17, above.

(18) "Earnings and expenses during construction." The earnings and expenses during construction shall constitute a component of construction costs.

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(a) The earnings shall include revenues received or earned by plants during the construction period. The revenues shall also include rentals for lands, buildings, etc., and miscellaneous receipts not properly includible in other accounts.

(b) The expenses shall consist of the cost of operating the wastewater plant, and other costs incident to the wastewater costs for which construction is credited under paragraph (a), above, including the cost of repairs and other expenses of operating and maintaining lands, buildings, and other property, and other miscellaneous and like expenses not properly includible in other accounts.

20. Utility Plant - Overhead Construction Costs

A. All overhead construction costs, such as engineering, supervision, general office salaries and expenses, construction engineering and supervision by others than the accounting utility, legal expenses, insurance, injuries and damages, relief and pensions, taxes and allowance for funds used during construction, shall be charged to particular jobs or units on the basis of the amounts of such overheads reasonably applicable thereto, so that each job or unit shall bear its equitable proportion of such costs and that the entire costs of the unit, both direct and overhead, shall be deducted from the plant accounts at the time the property is retired.

B. As far as practicable, the determination of payroll charges includible in construction overheads shall be based on time card distributions thereof. Where this procedure is impractical, special studies shall be made periodically of the time of supervisory employees devoted to construction activities so that only such overhead costs as have a definite relation to construction shall be capitalized. The addition to direct construction costs of arbitrary percentages or amounts to cover assumed overhead costs is not permitted.

C. The records supporting the entries for overhead construction costs shall be so kept as to show the total amount of each overhead for each year, the nature and amount of each overhead expenditure charged to each construction work order and to each utility plant account, and the basis of distribution of such costs.

21. Utility Plant - Purchased or Sold

A. When utility plant constituting an operating unit or system is acquired by purchase, merger, consolidation, liquidation, or

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otherwise, the costs of acquisition, including expenses incidental thereto properly includible in utility plant, shall be charged to account 104 - Utility Plant Purchased or Sold.

B. The accounting for the acquisition shall then be completed as follows:

(1) The original cost of plant, estimated if not known, shall be credited to account 104 - Utility Plant Purchased or Sold, and concurrently charged to the appropriate utility plant in service accounts and account 102 - Utility Plant Leased to Others and account 103 - Property Held for Future Use, and account 105 - Construction Work in Progress, as appropriate.

(2) The requirements for accumulated depreciation and amortization applicable to the original cost of the properties purchased, if required by the Commission to be recorded by the accounting utility determined with due regard to operating practices of the purchaser and his plans regarding such property, and giving consideration also to the effect on such requirements of any rehabilitation expenditures (see Paragraph C), shall be charged to account 104 - Utility Plant Purchased or Sold, and concurrently credited to the appropriate account for accumulated depreciation or amortization.

(3) The cost to the utility of any property includible in account 121 - Nonutility Property, shall be transferred thereto.

(4) The amount of contributions in aid of construction applicable to the property acquired, and which the purchaser may be required to record, shall be charged to account 104 - Utility Plant Purchased or Sold, and concurrently credited to account 271 - Contributions in Aid of Construction.

(5) The amount of accumulated amortization applicable to contributed property, and which the purchaser may be required to record, shall be credited to account 104 - Utility Plant Purchased or Sold and concurrently debited to account 272 - Accumulated Amortization of Contributions in Aid of Construction, according to the regulatory treatment of the Commission.

(6) The amount remaining in account 104 - Utility Plant Purchased or Sold, shall then be closed to account 114 - Utility Plant Acquisition Adjustments.

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C. If property acquired in the purchase of an operating unit or system is in such physical condition when acquired that it is necessary substantially to rehabilitate it in order to bring the property up to the standards of the utility, the cost of such work, except replacements, shall be accounted for as a part of the purchase price of the property.

D. When any property acquired as an operating unit or system includes duplicate or other plant, which will be retained by the accounting utility in the reconstruction of the acquired property or its consolidation with previously owned property, the accounting for such property shall be presented to the Commission.

E. In connection with the acquisition of utility plant, the utility shall procure, if possible, all existing records relating to the property acquired, or certified copies thereof, and shall preserve such records in conformity with regulations or practices governing the preservation of records of its own construction.

F. When utility plant constituting an operating unit or system is sold, conveyed, or transferred to another by sale, merger, consolidation, or otherwise, the book cost of the property sold or transferred to another shall be credited to the appropriate utility plant accounts, including amounts carried in account 114 - Utility Plant Acquisition Adjustments, and the amounts (estimated if not known) carried with respect thereto in the accounts for accumulated depreciation and amortization and in account 252 - Advances for Construction, and account 271 - Contributions in Aid of Construction, shall be charged to such accounts and the contra entries made to account 104 - Utility Plant Purchased or Sold. Unless otherwise ordered by the Commission, the difference, if any between (a) the net amount of debits and credits and (b) the consideration received for the property (less commissions and other expenses of making the sale) shall be included in account 414 - Gains (Losses) From Disposition of Utility Property (See account 104 - Utility Plant Purchased or Sold).

Note:-In cases where existing utilities merge or consolidate because of financial or operating reasons or statutory requirements rather than as a means of transferring title of purchased properties to a new owner, the accounts of the constituent utilities, with the approval of the Commission, may be combined. In the event original cost has not been determined, the resulting utility shall proceed to determine such cost as outlined herein.

ACCOUNTING INSTRUCTIONS

22. Utility Plant - Accounting for Capital and Operating Leases

A. For each lease entered into, the utility shall maintain sufficient documents and other background information as necessary to determine whether the lease is a capital or operating lease. This information includes but is not limited to:

- (1) Evidence or documents of ownership;
- (2) Signed copies of the lease agreement;
- (3) Estimated life of the leased property;
- (4) Evidence as to the value of the leased property;
- (5) Evidence as to the lessor's implicit interest rate (if available);
- (6) Evidence as to the lessee's borrowing rate; and
- (7) The amount and disposition of executory costs (taxes, maintenance and insurance).

B. Leases shall be accounted for by the utility as described in Statement of Financial Accounting Standards Nos. 13 (as amended) and 71 published by the Financial Accounting Standards Board; however, the Commission may elect to approve the entries made to the utilities accounts in recording the effect of utility leases.

C. Capitalized leases shall be recorded in the appropriate plant in service account(s) which describe the type of asset leased. These records shall be maintained in sufficient detail such that the utility will be able to report the number, general nature, and residual balances of all capitalized leased assets as well as any related leasehold amortization balances and the balance of any leasehold obligations.

23. Utility Plant - Expenditures on Leased Property

A. The cost of substantial initial improvements (including repairs, rearrangements, additions and betterments) made in the course of preparing for utility property leased for a period of more than one year, and the cost of subsequent substantial additions, replacements, or betterments to such property, shall be charged to the utility plant account appropriate for the class of property leased. If the service life of the improvements is terminable by action of the lease, then the cost, less net salvage, of the improvements shall be spread over the life of the lease by charges to account 407.1 - Amortization of Limited Term Plant. However, if the service life is not terminated by action of the lease, but by depreciation proper, then the cost of the improvements, less net salvage, shall be accounted for as depreciable plant.

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B. If improvements made to property leased for a period of more than one year are of relatively minor cost, or if the lease is for a period of not more than one year, the cost of the improvements shall be charged to the account in which the rent is included either directly or by amortization thereof.

24. Utility Plant - Land and Land Rights

A. The accounts for land and land rights include the cost of land owned in fee by the utility and rights, interests, and privileges held by the utility in land owned by others, such as leaseholds, easements, water and water power rights, diversion rights, submerision rights, rights of way, and other like interests in land. Do not include in the accounts for land, land rights, and rights of way costs incurred in connection with first clearing and grading of land and rights of way and the damage costs associated with the construction and installation of plant. Such costs shall be included in the appropriate plant accounts directly benefited.

B. Where special assessments for public improvements provide for deferred payments, the full amount of the assessments shall be charged to the appropriate land account and the unpaid balance shall be carried in an appropriate liability account. Interest on unpaid balances shall be charged to the appropriate interest account. If any part of the cost of public improvements is included in the general tax levy, the amount thereof shall be charged to the appropriate tax account.

C. Separate entries shall be made for the acquisition, transfer or retirement of each parcel of land, and each land right (except rights of way for collection lines), or water rights, having a life of more than one year. A record shall be maintained showing the nature of ownership; full legal description; area; map reference; purpose for which used; city; county; and tax district in which situated; from whom purchased or to whom sold; payment given or received; other costs; contract date and number; date of recording of deed; and book and page of record. Entries transferring or retiring land or land rights shall refer to the original entry recording its acquisition.

D. Any difference between the amount received from the sale of land or land rights, less agents' commissions and other costs incident to the sale, and the book cost of such land or rights, shall be included in account 414 - Gains (Losses) from Disposition of Utility Property, unless a reserve therefore has been authorized and provided or, less otherwise authorized or required by the

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Commission. Appropriate adjustments of the accounts shall be made with respect to any structures or improvements located on land sold.

E. The cost of buildings and other improvements (other than public improvements) shall not be included in the land accounts. If at the time of acquisition of any interest in land, such interest extends to buildings or other improvements (other than public improvements), which are then devoted to wastewater operations, the land and improvements shall be separately appraised and the cost allocated to land and buildings or improvements on the basis of the appraisals. If the improvements are removed or wrecked without being used in operations, the cost of removing or wrecking shall be charged and the salvage credited to the account in which the cost of the land is recorded.

F. When the purchase of land for utility operations requires the purchase of more land than needed for such purposes, the charge to the specific land account shall be based upon the cost of the land purchased, less the fair market value of that portion of the land which is not to be used in utility operations. The portion of the cost measured by the fair market value of the land not to be used shall be included in account 103 - Property Held for Future Use, or account 121 - Nonutility Property, as appropriate.

G. Provision shall be made for amortizing amounts carried in the accounts for limited term interests in land so as to apportion equitably the cost of each interest over the life thereof (See account 110.1 - Accumulated Amortization of Utility Plant in Service, and account 407.1 - Amortization of Limited Term Plant).

25. Utility Plant - Structures and Improvements

A. The accounts for structures and improvements include the cost of all buildings and facilities to house, support, or safeguard property or persons, including all fixtures permanently attached to and made a part of buildings and which cannot be removed therefrom without cutting into the walls, ceilings, or floors, or without in some way impairing the buildings, and improvements of a permanent character on or to land. Also include those costs incurred in connection with the first clearing and grading of land and rights of way, and the damage costs associated with construction and installation of plant.

B. The cost of specially provided foundation, not intended to outlast the machinery for apparatus for which provided, and the cost of angle irons, castings, etc., installed at the base of any item of equipment, shall be charged to the same account as the cost of the machinery, apparatus, or equipment.

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C. Minor buildings and structures, such as valve towers, patrolmen's towers, telephone stations, etc., which are used directly in connection with or form a part of a collection plant, treatment plant, etc., shall be considered a part of that facility constructed or operated and the cost thereof accounted for accordingly.

D. The cost of disposing of materials excavated in connection with construction of structures shall be considered as a part of the cost of such work, except as follows: (a) When such material is used for filling, the cost of loading, hauling, and dumping shall be equitably apportioned between the work in connection with which the removal occurs and work in connection with which the material is used; (b) When such material is sold, the net amount realized from such sales shall be credited to the work in connection with which the removal occurs. If the amount realized from the sale of excavated materials exceeds the removal costs and the costs in connection with the sale, the excess shall be credited to the land account in which the site is carried.

E. Lighting or other fixtures temporarily attached to building for purposes of display or demonstration shall not be included in the cost of the building, but in the appropriate equipment account.

26. Utility Plant - Equipment

A. The cost of equipment chargeable to the utility plant accounts, unless otherwise indicated in the text of an equipment account, includes the net purchase price thereof, sales taxes, investigation and inspection expenses necessary to such purchase, expenses of transportation when borne by the utility, labor employed, materials and supplies consumed, and expenses incurred by the utility in unloading and placing the equipment in readiness to operate. Also include those costs incurred in connection with the first clearing and grading of land and rights of way and the damage costs associated with construction and installation of plant.

B. Exclude from equipment accounts hand and other portable tools, which are likely to be lost or stolen or which have a value of less than \$750 or short life, unless the correctness of the accounting therefor as utility plant is verified by current inventories. Special tools acquired and included in the purchase price of equipment shall be included in the appropriate plant account. Portable drills and similar tool equipment when used in connection with the operation and maintenance of a particular plant or department, such as pumping, transmission and distribution, etc., or in "stores", shall be charged to the plant account appropriate for their use.

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C. The equipment accounts shall include angle irons and similar items which are installed at the base of an item of equipment, but piers and foundations which are designed to be as permanent as the buildings which house the equipment, or which are constructed as a part of the buildings and which cannot be removed without cutting into the walls, ceilings or floors without in some way impairing the building, shall be included in the building accounts.

D. The equipment accounts shall include the necessary costs of testing or running a plant or part thereof during an experimental or test period prior to becoming available for service. The utility shall furnish the Commission with full particulars of and justification for any test or experimental run extending beyond a period of thirty days.

E. The cost of efficiency or other tests made subsequent to the date equipment becomes available for service shall be charged to the appropriate expense accounts, except that tests to determine whether equipment meets the specifications and requirements as to efficiency, performance, etc., guaranteed by manufacturers, made after operations have commenced and within the period specified in the agreement or contract of purchase, may be charged to the appropriate utility plant account.

27. Utility Plant - Additions and Retirements

A. For the purpose of avoiding undue refinement in accounting for additions to and retirements and replacements of utility plant, all property shall be considered as consisting of (1) retirement units and (2) minor items of property. Each utility shall use such list of retirement units as is in use by it at the effective date hereof or as may be prescribed by the Commission, with the option, however, of using smaller units, provided the utility's practice in this respect is consistent.

B. The addition and retirement of retirement units shall be accounted for as follows:

- (1) When a retirement unit is added to the utility plant, the cost thereof shall be added to the appropriate utility plant account, except that when units are acquired in the acquisition of any utility plant constituting an operating system, they shall be accounted for as provided in Instruction 21.

ACCOUNTING INSTRUCTIONS

- (2) When a retirement unit is retired from utility plant, with or without replacement, the book cost thereof shall be credited to the utility plant account in which it is included, determined in the manner set forth in paragraph D, below. If the retirement unit is of a depreciable class, the book cost of the unit retired and credited to utility plant shall be charged to the accumulated depreciation applicable to such property. The cost of removal and the salvage shall be charged or credited, as appropriate, to such depreciation account.

C. The addition and retirement of minor items of property shall be accounted for as follows:

- (1) When a minor item of property which did not previously exist is added to plant and a substantial addition results, the cost thereof shall be accounted for in the same manner as for the addition of a retirement unit, as set forth in paragraph B(1), above, otherwise the charge shall be to the appropriate maintenance expense account.
- (2) When a minor item of property is retired and not replaced, the book cost thereof shall be credited to the utility plant account in which it is included; and, in the event the minor item is a part of a depreciable plant, the account for accumulated depreciation shall be charged with the book cost and cost of removal and credited with the salvage. If, however, the book cost of the minor item retired and not replaced has been or will be accounted for when such unit is retired, no separate credit to the property account is required.
- (3) When a minor item of depreciable property is replaced independently of the retirement unit of which it is a part, the cost of replacement shall be charged to the maintenance expense account appropriate for the item, except that if the replacement effects a substantial betterment (the primary aim of which is to make the property affected more useful, more efficient, of greater durability, or of greater capacity), the excess cost of the replacement over the estimated cost at current prices of replacing without betterment shall be charged to the appropriate utility plant account.

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- D. The book cost of the utility plant retired shall be the amount at which such property is included in the utility plant accounts, including all components of construction costs. The book cost shall be determined from the utility's records and if this cannot be done, it shall be estimated. When it is impracticable to determine the book cost of each unit, due to the relatively large number or small cost thereof, an appropriate average book cost of the units, with due allowance for any differences in size and character, shall be used as the book cost of the units retired.
- E. The book cost of land retired shall be credited to the appropriate land account. If the land is sold, the difference between the book cost and the sale price of the land (less commissions and other expenses of making the sale) shall be included in account 414 - Gains (Losses) from Disposition of Utility Property, unless otherwise authorized or required by the Commission. If the land is not used in utility service but is retained by the utility, the book cost shall be charged to account 103 - Property Held for Future Use, or account 121 - Nonutility Property, as appropriate.
- F. The book cost less net salvage of depreciable utility plant retired shall be charged in its entirety to account 108.1 - Accumulated Depreciation of Utility Plant in Service. Any amounts which, by approval or order of the Commission, are charged to account 182 - Extraordinary Property Losses, shall be credited to account 108.1 - Accumulated Depreciation of Utility Plant in Service.
- G. The accounting for the retirement of amounts included in account 352 - Franchises and the items of limited term interest in land included in the accounts for land and land rights shall be as provided for in the text of account 110.1 - Accumulated Amortization of Utility Plant in Service, account 407.1 - Amortization of Limited Term Plant and account 407.3 - Amortization of Other Utility Plant.
- H. In some instances the unexpected early retirement of a major unit of property, which would eliminate or seriously deplete the existing depreciation reserve, may require accounting treatment which differs from that described in paragraph B above. In such instances the Commission may authorize or order the loss on retirement (less any tax savings) to be charged to income in the current year or transferred to account 186 - Miscellaneous Deferred Debits, and amortized in future periods. Such accounting treatment shall be used only when specifically authorized or directed by the Commission.

ACCOUNTING INSTRUCTIONS

28. Utility Plant - Work Order and Property Record System Required

A. Each utility shall record all construction and retirements of utility plant by means of work orders or job orders. Separate work orders may be opened for additions to and retirements of utility plant or the retirements may be included with the construction work order, provided, however, that all items relating to the retirements shall be kept separate from those relating to construction and provided, further, that any maintenance costs involved in the work shall likewise be segregated.

B. Each utility shall keep its work order system so as to show the nature of each addition to or retirement of utility plant, the total cost thereof, the source or sources of costs, and the utility plant account or accounts to which charged or credited. Work orders covering jobs of short duration may be cleared monthly.

C. Each utility shall maintain records in which, for each plant account, the amounts of the annual additions and retirements are classified so as to show the number and the cost of the various retirement units or other appropriate record units included therein.

29. Utility Plant - Transfers of Property

A. When property is transferred from one utility plant account to another, from one utility department to another, such as from water to wastewater, from one operating division or area to another, to or from accounts 101 - Utility Plant in Service, 102 - Utility Plant Leased to Others and 103 - Property Held for Future Use, the transfer shall be recorded by transferring the original cost thereof from the one account, department, or location to the other. Any related amounts carried in the accounts for accumulated depreciation or amortization shall be transferred in accordance with the segregation of such accounts.

B. When depreciable property is transferred from the utility plant accounts to account 121 - Nonutility Property, the transfer shall be accomplished by crediting the utility plant accounts and charging the accumulated depreciation with the book cost of the item transferred; the accumulated depreciation shall then be credited and account 121 - Nonutility Property, concurrently charged with the market value of the property transferred. If the property is sold within a relatively short time, a debit or credit shall be made to the accumulated depreciation to adjust the estimated salvage to the amount actually realized.

ACCOUNTING INSTRUCTIONS

30. Utility Plant - Common Plant

A. If the utility is engaged in more than one utility service such as water, wastewater, electric and gas, and any of its utility plant is used in common for several utility services or for other purposes to such an extent and in such manner that it is impracticable to segregate it by utility services currently in the accounts, such property with the approval of the Commission, may be designated and classified as "common utility plant".

B. Utility plant designated as common utility plant shall be classified according to the detailed utility plant accounts appropriate for the property.

C. The utility shall be prepared to show at any time and to report to the Commission annually, or more frequently, if required, and by utility plant accounts (351 to 398) the following: (1) the book cost of common utility plant (2) the allocation of such cost to the respective departments using the common utility plant and (3) the basis of the allocation.

D. The accumulated provision for depreciation and amortization of the utility shall be segregated so as to show the amount applicable to the property classified as common utility plant.

E. The expenses of operation, maintenance, rent, depreciation and amortization of common utility plant shall be recorded in the accounts prescribed herein but designated as common expenses, and the allocation of such expenses to the departments using the common utility plant shall be supported in such manner as to reflect readily the basis of allocation used.

31. Utility Plant - Multiple Use

Land, rights of way and structures used jointly for several functions, such as supply, and transmission and distribution purposes, shall be classified according to the major use thereof.

32. Utility Plant - Plant Account Matrix

A. Class A utilities (as defined in Instruction 1) are required to subdivide the plant accounts into "functional" operations. Each object account shall be subdivided as shown in the plant account matrix shown on page 98. The subaccounts are to be designated by adding a suffix of one decimal place to the three digit account number.

ACCOUNTING INSTRUCTIONS

B. The "functional" operations for the wastewater system are listed below along with the designated suffix:

- .1 Intangible plant
- .2 Collection plant
- .3 System pumping plant
- .4 Treatment and disposal plant
- .5 Reclaimed water treatment plant
- .6 Reclaimed water distribution plant
- .7 General Plant

33. Operating Income - Depreciation Expense

A. Depreciation charges shall be computed using either the straight-line remaining life method (See definition 38) or the straight-line method (See definition 39), according to which method has been approved by the Commission. Composite depreciation rates (See definition 8) may be used with prior Commission approval. When at all possible, separate depreciation charges shall be computed for both contributed plant and for plant generating investment tax credits including progress payment investment tax credits.

B. When the straight-line remaining life method is used, the rates shall be reviewed periodically and adjusted as required, so that the depreciation accrual will bear a reasonable relationship to the remaining life, the estimated net future salvage, cost of plant in service and to the balance of accumulated depreciation accrued in prior periods.

C. When the straight-line method is used, the rates shall be reviewed periodically and adjusted as required, so that the depreciation accrual will bear a reasonable relationship to the service life, the estimated net salvage, and the cost of plant in service.

D. Amortization of contributions in aid of construction (CIAC), if recognized by the Commission, shall be credited to account 403 - Depreciation Expense. The concurrent debit is to account 272 - Accumulated Amortization of CIAC. The resulting balance in the depreciation expense account will be net of CIAC amortization. CIAC shall be amortized over a period equal to the estimated service life of the related contributed asset. A group composite or overall composite rate, which ever is applicable, may be used for CIAC that can not be directly related to a particular plant asset.

34. Operating Income - Income Taxes

A. Current income tax provision:

- (1) The utility shall initially debit account 409 - Income

ACCOUNTING INSTRUCTIONS

Taxes, and credit account 236 - Accrued Taxes, to record its estimated current income tax liability. As the exact amounts of taxes become known, the current tax accruals shall be adjusted by debits or credits to these accounts unless such adjustments are properly includible in account 214 - Appropriated Retained Earnings or account 215 - Unappropriated Retained Earnings, so that these accounts as nearly as can be ascertained shall include the actual taxes payable by the utility.

- (2) The accruals for income taxes shall be apportioned among utility departments and to Other Income and Deductions so that, as nearly as practicable, each tax shall be included in the expenses of the utility department or Other Income and Deductions, and shall be related to the income which gave rise to the tax. Adjustments to account 214 - Appropriated Retained Earnings or account 215 - Unappropriated Retained Earnings, shall be recorded net of tax.

B. Interperiod Tax Allocation - Depreciation:

- (1) The Federal Economic Recovery Tax Act of 1981 (ERTA).

ERTA provides that a utility claiming accelerated depreciation (Accelerated Cost Recovery System (ACRS)) must use a normalized method of accounting for federal income taxes on its regulated books of account and for ratemaking purposes. A utility must use the same depreciation method and service lives in computing federal income tax expense when establishing cost of service for ratemaking purposes as is used in its regulated books of account, or if it uses a different method, it must make adjustments to a reserve to reflect the deferral of taxes resulting from such differences. Similarly, in order to claim investment tax credits, a utility must defer the entire balance of investment tax credits on its books of account and amortize the balance over the life of the related property.

ACCOUNTING INSTRUCTIONS

C. Comprehensive Interperiod Income Tax Allocation - Other Than Depreciation.

- (1) Certain regulatory bodies have required comprehensive interperiod income tax allocation of all material book-tax timing differences other than depreciation differences. They have reasoned that where there are timing differences between the period in which transactions affect taxable income and the periods in which they enter into the determination of pretax accounting income, the income tax effects of such transactions are to be recognized in the periods in which the differences between book accounting income and taxable income arise and in the period in which the differences reverse using the deferred tax method. In general, comprehensive interperiod tax allocation should be followed whenever transactions enter into the determination of pretax accounting income for the period even though some transactions may affect the determination of taxes payable in a different period, as further qualified below.
- (2) Utilities are not required to utilize comprehensive interperiod income tax allocation until the deferred income taxes are included as an expense in the rate level by the regulatory authority having rate jurisdiction over the utility. Where comprehensive interperiod tax allocation accounting is not practiced, the utility shall include as a note to each financial statement, prepared for public use, a footnote explanation setting forth the utility's accounting policies with respect to interperiod tax allocation and describing the treatment by regulatory authorities having rate jurisdiction for ratemaking purposes of the tax timing differences.
- (3) Should the utility be subject to more than one agency having rate jurisdiction, its accounts shall appropriately reflect the ratemaking treatment (deferral or flow through) of each jurisdiction.
- (4) Once comprehensive interperiod tax allocation has been initiated either in whole or in part it shall be practiced on a consistent basis and shall not be changed or discontinued without prior Commission approval.

ACCOUNTING INSTRUCTIONS

EXAMPLE

The following example shows how the various transactions are recorded:

- a. A utility purchases depreciable plant at a cost of \$10,000. The plant has a 10 year life with no salvage.
- b. The utility's federal taxable income from utility operations, before the effect of depreciation is \$30,000 (46% tax rate).
- c. ACRS depreciation for each year is \$800, \$1400, \$1200, \$1000, \$1000, \$1000, \$900, \$900, \$900, \$900.
- d. Book depreciation for each year using half year convention in year placed in service is: \$500, \$1000, \$1000, \$1000, \$1000, \$1000, \$1000, \$1000, \$1000, \$500.
- e. Investment tax credit is \$800 (\$10,000 x 8%) in order to use 100% of the \$10,000 cost for ACRS depreciation.
- f. Deferred taxes are calculated by subtracting tax depreciation from book depreciation and multiplying by the tax rate. If tax depreciation is greater than book, debit Account 410 and credit Account 282. If book depreciation is greater than tax, debit account 282 and credit account 410.

	Account Number	Account Title	Debit	Credit
Year 1				
1-a	409.10	Income Taxes, Utility Operating Income	\$12,632	
	236.1	Accrued Taxes, Utility Operating Income		\$12,632
		To record taxes estimated be payable for period (.46(\$30,000- \$800)) - \$800		
1-b	410.10	Deferred Income Taxes	138	
	282	Accumulated Deferred Income Taxes - Liberalized Depreciation		138
		To record deferral of a portion of taxes based on the difference between straight-line depreciation		

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
	and ACRS depreciation (.46(\$500-\$800)). NOTE:--The deferred tax balance of \$138 would either be deducted from rate base or be included in capital structure at zero cost.		
1-c 412.10	Investment Tax Credits Deferred to Future Periods, Utility Operations	800	
255.1	Accumulated Deferred Investment Tax Credits, Utility Operations		800
	To record the investment tax credits realized and deferred to future years in accordance with provisions of either the "General Rule"/Option 1 Treatment or the "Special Rule for Ratable Flow - through"/Option 2 Treatment (\$10,000 x 8%).		
1-d 255.1	Accumulated Deferred Investment Tax Credits, Utility Operations	40	
412.30	Investment Tax Credits Restored to Nonoperating Income, Utility Operations		40
	To record ratable amortization over the book depreciable life of the investment tax credits deferred to future periods (.50 (\$800 (1/10))). NOTE:--The net balance of deferred investment tax credits (\$800 - \$40) would be either deducted from rate base or included in capital structure at zero cost. This treatment is followed by utilities subject to the "General Rule"/Option 1 Treatment.		
1-e 255.1	Accumulated Deferred Investment Tax Credits, Utility Operations	40	
412.11	Investment Tax Credits Restored to Operating Income, Utility Operations.		40
	To record ratable flow-through over the asset's book depreciable life of investment tax credits deferred		

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
to future periods (.50(\$800 (1/10))). NOTE:--The net balance of deferred ITC (\$800-\$40) would earn the overall rate of return. This treatment is followed by utilities subject to "Special Rule for Ratiable Flow-through"/Option 2 Treatment.			
Year 2			
2-a 409.10	Income Taxes, Utility Operating Income	\$13,156	
236.1	Accrued Taxes, Utility Operating Income		\$13,156
To record taxes estimated to be payable for period .46(\$30,000 - \$1,400)).			
2-b 410.10	Deferred Income Taxes	184	
282	Accumulated Deferred Income Taxes-Liberalized Depreciation		184
To record deferral of a portion of taxes based on the difference between straight-line depreciation and ACRS depreciation (.46(\$1000-\$1400))). NOTE:--The cumulative balance of deferred taxes (\$138 + \$184) would be either deducted from rate base or included in capital structure at zero cost.			
2-c 255.1	Accumulated Deferred Investment Tax Credits, Utility Operations	80	
412.30	Investment Tax Credits Restored to Nonoperating Income, Utility Operations		80

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
<p>To record ratable amortization over the asset's book depreciable life of the ITC deferred to future periods (\$800 (1/10))). NOTE:--The net balance of deferred ITC (\$800- (\$40 + \$80)) would be either deducted from rate base or included in capital structure at zero cost. This treatment is followed by utilities subject to the "General Rule"/Option 1 Treatment.</p>			
2-d 255.1	Accumulated Deferred Investment Tax Credits, Utility Operations	80	
412.11	Investment Tax Credits Restored to Operating Income, Utility Operations		80
<p>To record ratable flow-through over the asset's book depreciable life of investment tax credits deferred to future period (\$800(1/10))). NOTE:--The net balance of deferred ITC (\$800- (\$40 + \$80)) would earn the overall rate of return. This treatment is followed by utilities subject to the "Special Rule for Ratable Flow-Through"/Option 2 Treatment.</p>			
Year 3			
3-a 409.10	Income Taxes, Utility Operating Income	13,248	
236.1	Accrued Taxes, Utility Operation Income		13,248
<p>To record taxes estimated to be payable for the period (.46(\$30,000-\$1,200))).</p>			
3-b 410.10	Deferred Income Taxes	92	
282	Accumulated Deferred Income Taxes - Liberalized Depreciation		92
<p>To record deferral of a portion of taxes based on the difference between straight-line depreciation and</p>			

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
	ACRS depreciation (((\$1,000-\$1,200) .46) . The cumulative balance of deferred taxes (\$138 + \$184 + \$92) would be either deducted from rate base or included in capital structure at zero cost.		
3-c 255.1 412.30	"General Rule"/Option 1 Treatment utilities would record the same entry as in Year 2 for amortization of ITC. The net balance deducted from rate base or included in capital structure at zero cost would be (\$800-(\$40 + 2 (\$80)))	80	80
3-d 255.1 412.11	"Special Rule for Ratable Flow-Through"/Option 2 Treatment utilities would record the same entries recorded in Year 2 for ratable flow-through of ITC. The net ITC balance earning the overall rate of return would be \$600.	80	80
Year 4			
4-a 409.10 236.1	Income Taxes, Utility Operating Income Accrued Taxes, Utility Operating Income	13,340	13,340
	To record taxes estimated to be payable for the period (.46(\$30,000-\$1,000))		
4-b 410.10 282	No entry would be made related to deferred taxes because book and tax depreciation are equal. The cumulative balance of \$414 would continue to be deducted from rate base or included in capital structure at zero cost.		
4-c 255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 2 Net deferred balance either deducted	80	80

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
	from rate base or included in capital structure at zero cost would be $(\$800 - (\$40 + 33(\$800)))$.		
4-d 255.1 412.11	"Special Rule for Ratable Flow-Through"/Option 2 Treatment utilities. Same entry as Year 2. Net balance earning the overall rate of return would be \$520.	80	80
Year 5			
5-a 409.10 236.1	Same entry as Year 4.	13,340	13,340
5-b 410.10 282	See Year 4.		
5-c 255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 2. Net ITC balance deducted from rate base or included in capital structure is \$440.	80	80
5-d 255.1 412.11	"Special Rule for Ratable Flow-Through"/Option 2 Treatment utilities. Same entry as Year 2. Net ITC balance earning overall rate of return is \$440.	80	80
Year 6			
6-a 409.10 236.1	Same entry as Year 4.	13,340	13,340
6-b 410.10 282	See Year 4.		
6-c 255.1 412.30	"General Rule"/Option 1 Treatment utilities same entry as Year 2. Net ITC balance deducted from rate base or included in capital structure at zero cost is \$360.	80	80

ACCOUNTING INSTRUCTIONS

	Account Number	Account Title	Debit	Credit
6-d	255.1 412.11	"Special Rule for Ratable Flow-Through"/Option 2 Treatment utilities. Same entry as Year 2. Net ITC balance earning the overall rate of return is \$360.	80	80
Year 7				
7-a	409.10 236.1	Income Taxes, Utility Operating Income Accrued Taxes, Utility Operating Income	13,386	13,386
To record taxes estimated to be payable for the period (.46 (\$30,000 - \$900)):				
7-b	282 410.10	Accumulated Deferred Income Taxes - Liberalized Depreciation Deferred Income Taxes To record reversal of taxes deferred in prior years (\$1000 - \$900).46). NOTE:--The net deferred tax balance deducted from rate base or included in capital structure at zero cost is \$368.	46	46
7-c	255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entries as Year 2. Net ITC balance deducted from rate base or included in capital structure at zero cost is \$280.	80	80
7-d	255.1 412.11	"Special Rule for Ratable Flow-Through"/Option 2 Treatment utilities. Same entry as Year 2. NOTE:--Net ITC balance earning the overall rate of return is \$280.	80	80
Year 8				
8-a	409.10 236.1	Same entry as Year 7.	13,386	13,386

ACCOUNTING INSTRUCTIONS

	Account Number	Account Title	Debit	Credit
8-b	282 410.10	Same entry as Year 7. NOTE:--Net balance deducted from rate base or included in capital structure at zero cost is \$322.	46	46
8-c	255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 2. NOTE:--Net ITC balance deducted from rate base or included in capital structure at zero cost is \$200.	80	80
8-d	255.1 412.11	"Special Rule for Ratable Flow- Through"/Option 2 Treatment utilities. Same entry as Year 2. NOTE:--Net ITC balance earning the overall rate of return is \$200.	80	80
Year 9				
9-a	409.10 236.1	Same entry as Year 7.	13,386	13,386
9-b	282 410.10	Same entry as Year 7. NOTE:-- Net balance of deferred taxes deducted from rate base or included in capital structure at zero cost is \$276.	46	46
9-c	255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 2. NOTE:--Net balance ITC deducted from rate base or included in capital structure at zero cost is \$120.	80	80
9-d	255.1 412.11	"Special Rule for Ratable Flow- Through"/Option 2 Treatment utilities. Same entry as Year 2. NOTE:--Net balance ITC earning overall rate of return is \$120.	80	80

ACCOUNTING INSTRUCTIONS

Account Number	Account Title	Debit	Credit
Year 10			
10-a 409.10 236.1	Same entry as Year 7.	13,386	13,386
10-b 282 410.10	Same entry as Year 7. NOTE:-- Net balance deferred taxes deducted from rate base or included in capital structure at zero cost is \$230.	46	46
10-c 255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 2. NOTE:--Net balance ITC deducted from rate base or included in capital structure at zero cost is \$40.	80	80
10-d 255.1 412.11	"Special Rule for Ratable Flow- Through"/Option 2 Treatment utilities. Same entry as Year 2. NOTE:--Net balance ITC earning overall rate of return is \$40.	80	80
Year 11			
11-a 409.10 236.1	Income Taxes, Utility Operating Income Accrued Taxes, Utility Operating Income	13,800	13,800
	To record taxes estimated to be payable for period (.46 (\$30,000)).		
11-b 282 410.10	Accumulated Deferred Income Taxes Liberalized Depreciation Deferred Income Taxes	230	230
	To record reversal of taxes deferred in prior years ((\$500- 0) .46). NOTE:--There is no longer a deferred tax balance to be deducted from rate base or included in capital structure at zero cost.		

ACCOUNTING INSTRUCTIONS

	Account Number	Account Title	Debit	Credit
11-c	255.1 412.30	"General Rule"/Option 1 Treatment utilities. Same entry as Year 1. NOTE:--There is no longer an ITC balance to be deducted from rate base or included in capital structure at zero cost.	40	40
11-d	255.1 412.11	"Special Rate for Ratable Flow- Through"/Option 2 Treatment utilities. Same entry as Year 1. NOTE:--There is no longer an ITC balance to earn the overall rate of return.	40	40

35. Operating Income - Clearing Accounts

The purpose of a clearing account is to temporarily accumulate in one account costs of a specific type which affect more than a single account, and which subsequently will be apportioned among utility plant accounts, operating expense accounts and other appropriate accounts.

The use of clearing accounts is optional. In addition to the payroll clearing account, a utility may use such additional clearing accounts as it finds useful. However, all operating expenses must be recorded in the accounts prescribed by this manual and the utility remains responsible for providing the underlying source documents as if all entries were made directly without the use of a clearing account.

36. Operating Income - Accrual Accounting

Monthly accounting using the accrual method is required. During the accounting period, certain amounts may have been earned although collection is not to be made until the subsequent period, and certain expenses may have been incurred, although payment is not to be made until a subsequent period. At the end of the accounting period the revenues and expenses shall be recognized by charging the appropriate expense account and corresponding liability or receivable account.

A reversing entry will be necessary at the beginning of the subsequent period.

ACCOUNTING INSTRUCTIONS

37. Operating Income - Operation and Maintenance Expense Account Matrix

A. Class A and B utilities (as defined in general instruction 1) are required to subdivide the operation and maintenance expenses into functions. Each object account shall be subdivided by the functions as shown in the matrix schedule which proceeds the Operation and Maintenance Expense Accounts (page 138). The function will be designated by adding an additional one digit suffix to the basic object account.

B. The "functional" operations for the wastewater system are listed with the designated suffix:

- .1 Collection expenses - operations
- .2 Collection expenses - maintenance
- .3 Pumping expenses - operations
- .4 Pumping expenses - maintenance
- .5 Treatment and disposal expenses - operations
- .6 Treatment and disposal expenses - maintenance
- .7 Customer accounts expense
- .8 Administrative and general expenses
- .9 Reclaimed water treatment expenses - operations
- .10 Reclaimed water treatment expenses - maintenance
- .11 Reclaimed water distribution expenses - operation
- .12 Reclaimed water distribution expenses - maintenance

38. Operating Income - Regulatory Assets and Liabilities

Regulatory debits and credits will often be used to reconcile differences between the requirements of Generally Accepted Accounting Principles, regulatory practice and federal, state, and local tax laws. For example, when there is a change in a federal, state or local income tax rate, Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes, (SFAS 109) requires that adjustments be made to existing debit and credit deferred tax balances through the income statement in the year in which the change is known or can be reasonably estimated. However, the Tax Reform Act of 1986 requires the effect of a federal income tax rate change to be recognized over a different period. Some state tax codes piggy-back the provisions of the federal tax code. Regulatory agencies may require that SFAS 109 be implemented in a revenue neutral method or they may accept the period of time and method required by tax law for the adjustment of deferred income tax balances. These different requirements can be accommodated through the use of Account 186.3 - Regulatory Assets, Account 253.1 - Regulatory Liabilities, Account 407.4 - Amortization of Regulatory Assets and Account 407.5 - Amortization of Regulatory Liabilities. By debiting and crediting these accounts, as appropriate, the difference between the existing deferred tax balances and the re-stated deferred tax balances can be flowed through the income statement as required by SFAS 109, without affecting the revenue requirement or violating the normalization

ACCOUNTING INSTRUCTIONS

requirements of the Internal Revenue Code. Further, the differences can be retained on the balance sheet so there is also no effect on either rate base or the utility's allowed rate of return.

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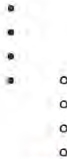
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Local

High, unpredictable water bills anger Columbia residents. A fix is coming, but slowly

By [Bristow Marchant](#)

December 04, 2019 02:00 PM



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COLUMBIA, SC

Their bills can run up to hundreds of dollars, without a clear idea of what they are being charged for.

Some Columbia water customers are complaining about bills they say are overcharging them for water they aren't using. The fees they have to pay also can vary wildly month-to-month, seemingly without a connection to the amount of water the home is using.

One bill might jump by \$100 from one month to the next, then drop by two-thirds another, users say.

"My bill was \$92 last month and \$42 this month," said Rosewood resident Tommie Richardson. "I have no leaks around the house; I had someone check. And I'm one person. Did nothing different from one month to the next.

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"Now I don't know what to expect. I'm seeing people post about 300-400 (dollar) bills, and it's scary."

City officials are rolling out what could be a solution to these high and unpredictable water bills: New, high-tech water meters that make it easier to measure water usage accurately and to detect costly leaks. But it could be years before some customers get that fix.

In the meantime, many Columbia water customers continue to scratch their heads over their bills.

Shandon resident Louise Grant said she received a bill for \$99 in July, a month when she was out of town. When she returned in August, the total for the month was \$42.

"I really think the the water department is charging some people random amounts for their bills, and then when people ask, the department isn't able to defend them," Grant said.

A thread on the [neighborhood social network Nextdoor drew more than a hundred comments](#) comparing bills, calling for an organized effort to lobby city government and even threatening a class-action lawsuit.

Clint Shealy, Columbia's assistant city manager for water services, said some customers could be seeing higher bills this time of year because the "summer sewer max" has come to an end.

Shealy says that in summer months, the city caps sewer charges at 1,400 cubic feet because it expects people to use a lot of water on their lawns. But that cap comes off at the end of September, meaning some people could see their bills rise even when it feels like they're using less water.

"You might see a jump between October and November because it's been so dry," and homeowners might still be running their sprinklers, Shealy said.

And some bills might simply be the result of human error. Meters have to be read manually by city workers checking meter boxes on the roadside and entering data into a handheld computer, which leaves open the possibility for a meter to be misread.

"The human eye can transpose a digit or finger the wrong number," Shealy said. "If a car is parked over the meter and we can't read it, the bill is estimated, and that can also lead to inaccurate bills."

Outgoing City Councilman Moe Baddourah said he often was able to get a meter re-read within one or two days when he received a water bill complaint from a resident.

"About half the time, it was some failure on the city's part, and half the time it was an accurate reading and the customer didn't realize they had run the sprinklers one day too many," Baddourah said.

6/4/2020

Columbia SC rolls out new water meters aimed at lower bills | The State

He said many customers' ire could be mitigated if city residents felt they got a better response from customer service when they called in a complaint.

The city is in the process of [rolling out new, digital water meters](#). The \$40 million system is being phased in over the next two years and will allow the city to monitor water usage accurately down to 15-minute increments, said City Councilman Howard Duvall.

One customer, he said, was seeing charges of \$800 a month before a smart meter was installed at her home. Then the water department noticed something strange.

"Every night at 11 o'clock, her water use would spike until 4 a.m.," Duvall said. "And she said, 'I have an automatic refill on my pool,' and it turns out it was a problem with the pool technology."

Shealy says leaks are a problem the city's current technology — meters that are read once every 30 days — can't helpfully detect. But the newer smart meters will be able to alert customers to leak-related water spikes almost in real time.

"Most people don't use the toilet once an hour, every hour," Shealy said. "If your toilet leaks intermittently, that can run up your bill. ... This is a powerful tool for customers to use to determine leaks."

Toni Elkins had one of the new digital meters installed at her Heathwood home. In one month, she saw her bill drop from \$600 to \$200.

"I called the city, the plumbers, everyone I knew to check the thing, and they could not find anything wrong," Elkins said.

"I didn't put much faith in (the new meter), but then I got my next bill and said, 'My God, that must be what's wrong with everybody!'"

But customers might have to wait a while to get those benefits. Out of 150,000 water meters in the city, only 13,000 meters have been changed in the past six months, and it will likely take another two and a half years to deliver the coup de grace to misread meters.

In the meantime, anyone with questions about their bill can reach the city's customer service line at 803-545-3300.

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Customer Meter Upgrade Project

Envision Innovation

Automated Meters are coming to Columbia!

Columbia Water is actively responding to our customers' demand for more accurate bills. Our plan is to provide the most reliable possible measurement of our customers' water use by installing advanced metering technology. With this Advanced Metering Infrastructure (AMI), our customers' water consumption will be transmitted remotely, securely, and directly to Columbia Water on a daily basis.

Already have a new meter? Visit our customer website portal, Eye On Water at **columbiascwater.eyeonwater.com/signin** to log in to your account to access up-to-the-minute information about your usage and set leak notifications. You can also download the app to your smart phone.

Is your home scheduled yet?

Click the image to the right or visit **gis.columbiasc.gov/ami** to see if your house or business is on the upcoming schedule. If it hasn't been scheduled yet, please check back at a later time.

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AMI will give more assurance and control to customers

- Fewer estimated bills due to more accurate meter readings
- Real-time alerts about possible leaks at your home/business
- The ability to better manage your water use—with online and smart phone visibility

AMI will serve all customers equally

- Reach: Columbia Water service territory throughout Richland & Lexington Co.
- Start Date: Summer 2019
- Approximate Cost: \$41 million at no additional cost to customers
- Timeline: Phased implementation over three years

AMI FAQs

- ☐ What is AMI?
- ☐ Why is the City adopting AMI?
- ☐ How does AMI affect me?

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- ☐ How will I know that you have my meter reading and not someone else's?
- ☐ Is my account information secure?
- ☐ Are there any potential health concerns with radio frequency signal?
- ☐ Will the radiofrequency signal interfere with my television, computer, cordless phone, garage door, pacemaker or other electronic devices?
- ☐ Will there be any difference in the delivery or quality of water after my meter upgrade?
- ☐ What if I have questions about the last meter read before my upgrade?
- ☐ How is the installation done?
- ☐ When will my installation occur?

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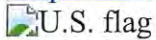
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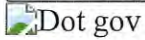
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Estimated use of water in the United States in 2015

Circular 1441

Water Availability and Use Science Program

By: Cheryl A. Dieter, Molly A. Maupin, Rodney R. Caldwell, Melissa A. Harris, Tamara I. Ivahnenko, John K. Lovelace, Nancy L. Barber, and Kristin S. Linsey

<https://doi.org/10.3133/cir1441>

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Links

- Document: [Report \(42 MB pdf\)](#)
- Related Work: [Fact Sheet 2018–3035](#) - Summary of Estimated Water Use in the United States in 2015

- Data Release: [USGS data release](#) - Estimated Use of Water in the United States County-Level Data for 2015
- Preceding Publications:
 - [Public supply and domestic water use in the United States, 2015 \(2017\)](#)
- Open Access Version: [Publisher Index Page](#)
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Abstract

First posted June 19, 2018

For additional information, contact:

[National Water Use Science Project Team](#)

U.S. Geological Survey
12201 Sunrise Valley Drive
Reston, VA 20192
<https://water.usgs.gov/watuse/>

Water use in the United States in 2015 was estimated to be about 322 billion gallons per day (Bgal/d), which was 9 percent less than in 2010. The 2015 estimates put total withdrawals at the lowest level since before 1970, following the same overall trend of decreasing total withdrawals observed from 2005 to 2010. Freshwater withdrawals were 281 Bgal/d, or 87 percent of total withdrawals, and saline-water withdrawals were 41.0 Bgal/d, or 13 percent of total withdrawals. Fresh surface-water withdrawals (198 Bgal/d) were 14 percent less than in 2010, and fresh groundwater withdrawals (82.3 Bgal/day) were about 8 percent greater than in 2010. Saline surface-water withdrawals were 38.6 Bgal/d, or 14 percent less than in 2010. Total saline groundwater withdrawals in 2015 were 2.34 Bgal/d, mostly for mining use.

Thermoelectric power and irrigation remained the two largest uses of water in 2015, and total withdrawals decreased for thermoelectric power but increased for irrigation. Withdrawals in 2015 for thermoelectric power were 18 percent less and withdrawals for irrigation were 2 percent greater than in 2010. Similarly, other uses showed reductions compared to 2010, specifically public supply (−7 percent), self-supplied domestic (−8 percent), self-supplied industrial (−9 percent), and aquaculture (−16 percent). In addition to irrigation (2 percent), mining (1 percent) reported larger withdrawals in 2015 than in 2010. Livestock withdrawals remained essentially the same in 2015 compared to 2010 (0 percent change). Thermoelectric power, irrigation, and public-supply withdrawals accounted for 90 percent of total withdrawals in 2015.

Withdrawals for thermoelectric power were 133 Bgal/d in 2015 and represented the lowest levels since before 1970. Surface-water withdrawals accounted for more than 99 percent of total thermoelectric-power withdrawals, and 72 percent of those surface-water withdrawals were from freshwater sources. Saline surface-water withdrawals for thermoelectric power accounted for 97 percent of total saline surface-water withdrawals for all uses. Thermoelectric-power withdrawals accounted for 41 percent of total withdrawals for all uses, and freshwater withdrawals for thermoelectric power accounted for 34 percent of the total freshwater withdrawals for all uses. Total consumptive use for thermoelectric power was 4.31 Bgal/d in 2015 or 3 percent of the total thermoelectric-power withdrawals.

Irrigation withdrawals were 118 Bgal/d in 2015, an increase of 2 percent from 2010 (116 Bgal/d), but were approximately equal to withdrawals estimated in the 1960s. Irrigation withdrawals, all freshwater, accounted for 42 percent of total freshwater withdrawals for all uses and 64 percent of total freshwater withdrawals for all uses excluding thermoelectric power. Surface-water withdrawals (60.9 Bgal/d) accounted for 52 percent of the total irrigation withdrawals, or about 8 percent less than in 2010. Groundwater withdrawals for irrigation were 57.2 Bgal/d in 2015, about 16 percent more than in 2010. About 63,500 thousand acres (or 63.5 million acres) were irrigated in 2015, an increase from 2010 of about 1,130 thousand acres (2 percent). The number of acres irrigated using sprinkler and microirrigation systems accounted for 63 percent of the total irrigated lands in

2015. Total consumptive use for irrigation was 73.2 Bgal/d in 2015 or 62 percent of the total use (withdrawals and reclaimed wastewater).

Public-supply withdrawals in 2015 were 39.0 Bgal/d, or 7 percent less than in 2010, continuing the declines observed from 2005 to 2010. Total population in the United States increased from 312.6 million people in 2010 to 325.0 million people in 2015, an increase of 4 percent. Public-supply withdrawals accounted for 14 percent of the total freshwater withdrawals for all uses and 21 percent of freshwater withdrawals for all uses, excluding thermoelectric power. The number of people that received potable water from public-supply facilities in 2015 was 283 million, or about 87 percent of the total United States population. This percentage is 1 percent greater than in 2010. Self-supplied domestic withdrawals were 3.26 Bgal/d, or 8 percent less than in 2010. More than 98 percent of the self-supplied domestic withdrawals were from groundwater sources.

Self-supplied industrial withdrawals were 14.8 Bgal/d in 2015, a 9 percent decline from 2010, continuing the downward trend since the peak of 47 Bgal/d in 1970. Total self-supplied industrial withdrawals were 5 percent of total withdrawals for all uses and 8 percent of total withdrawals for all uses, excluding thermoelectric power. Most of the total self-supplied industrial withdrawals were from surface-water sources (82 percent), and nearly all (94 percent) of those surface-water withdrawals were from freshwater sources. Nearly all of the groundwater withdrawals for self-supplied industrial use (98 percent) were from freshwater sources.

Total aquaculture withdrawals were 7.55 Bgal/d in 2015, or 16 percent less than in 2010, and surface water was the primary source (79 percent). Most of the surface-water withdrawals occurred at facilities that operated flow-through raceways, which returned the water to the source directly after use. Aquaculture withdrawals accounted for 2 percent of the total withdrawals for all uses and 4 percent of the total withdrawals for all uses, excluding thermoelectric.

Total mining withdrawals in 2015 were 4.00 Bgal/d, or about 1 percent of total withdrawals from all uses and 2 percent of total withdrawals from all uses, excluding thermoelectric. Mining withdrawals increased 1 percent from 2010 to 2015. Groundwater withdrawals accounted for 72 percent of the total mining withdrawals, and most of the groundwater was saline (65 percent). Most (77 percent) of the surface-water withdrawals for mining was freshwater.

Livestock withdrawals in 2015 were 2.00 Bgal/d, the same as in 2010. All livestock withdrawals were from freshwater sources, mostly from groundwater (62 percent). Livestock withdrawals accounted for about 1 percent of total freshwater withdrawals for all uses, excluding thermoelectric power.

In 2015, more than 50 percent of the total withdrawals in the United States were accounted for by 12 States (California, Texas, Idaho, Florida, Arkansas, New York, Illinois, Colorado, North Carolina, Michigan, Montana, and Nebraska). California accounted for almost 9 percent of the total withdrawals and 9 percent of freshwater withdrawals in the United States, predominantly for irrigation. Texas accounted for almost 7 percent of total withdrawals, predominantly for thermoelectric power, irrigation, and public supply. Florida accounted for 23 percent of the total saline-water withdrawals in the United States, mostly from surface-water sources for thermoelectric power. Texas and California accounted for 59 percent of the total saline groundwater withdrawals in the United States, mostly for mining.

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How We Use Water

House water banner

The Earth might seem like it has abundant water, but in fact less than 1 percent is available for human use. The rest is either salt water found in oceans, fresh water frozen in the polar ice caps, or too inaccessible for practical usage. While population and demand on freshwater resources are increasing, supply will always remain constant. And although it's true that the water cycle continuously returns water to Earth, it is not always returned to the same place, or in the same quantity and quality.

On this page:

- [The Water Around Us](#)
- [Water in Daily Life](#)
- [Understanding your Own Water Use](#)
- [Commercial, Industrial, Agricultural & Electricity Water Use](#)
- [Communities Face Challenges to Meet Demand](#)
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The Water Around Us

Water plays a big role in supporting our communities. Without water there would be no local business or industry. Fire-fighting, municipal parks, and public swimming pools all need lots of water. An array of pipes, canals, and pumping stations managed by our public water systems are needed to bring a reliable supply of water to our taps each day.

Where does all this water come from? It starts out as rain or snow and flows into our local lakes, rivers, and streams or into underground aquifers. You can learn more about water in your state, including how it is being protected and where your local drinking water comes from.

- [How is water used in my state?](#)
- [EPA water data and tools](#)

Water in Daily Life

 Pie chart of our water use

In the US, we are lucky to have easy access to some of the safest treated water in the world—just by turning on the tap. We wake up in the morning, take a shower, brush our teeth, grab a cup of coffee, and head out for the day. Water is an important part of our daily lives and we use it for a wide variety of purposes, but do we really understand how much we use?

- The average American family uses more than 300 gallons of water per day at home. Roughly 70 percent of this use occurs indoors.
- Nationally, outdoor water use accounts for 30 percent of household use yet can be much higher in drier parts of the country and in more water-intensive landscapes. For example, the arid West has some of the highest per capita residential water use because of landscape irrigation.


Understanding Your Own Water Use

An easy way to understand individual water use is to look at your water bill—not just the amount due, but how much water you used. Once you understand how much you use, the WaterSense calculator can help determine how much water your household could save if you switched to more efficient, [WaterSense labeled products](#).

- [Understanding Your Water Bill](#)
- [WaterSense Calculator](#)

Commercial, Industrial, Agricultural & Electricity Water Use

It's easy to forget that we also use water in ways we don't see every day. Water is used to grow our food, manufacture our favorite goods, and keep our businesses running smoothly. We also use a significant amount of water to meet the nation's energy needs. Learn more about what WaterSense is doing to help reduce [commercial and institutional water use](#).

 US Freshwater Withdrawals Chart

Communities Face Challenges to Meet Demand

Managing water is a growing concern in the US. Communities across the country are starting to face challenges regarding water supply and a need to update aging water treatment and delivery systems, sometimes referred to as "water infrastructure." Many of the states that have projected population growth increases also have higher per capita water use and can expect increased competition for water resources. Forty states told the Government Accountability Office in a 2014 [report](#) **EXIT** that they expected to have water shortages over the next ten years that were not related to drought.

Strains on water supplies and our aging water treatment systems can lead to a variety of consequences for communities, such as:

- Higher water prices to ensure continued access to a reliable and safe supply
- Increased summer watering restrictions to manage shortages
- Seasonal loss of recreational areas like lakes and rivers when the human demand for water conflicts with environmental needs
- Expensive water treatment projects to transport and store freshwater when local demand overcomes available capacity

Water use and population growth chart

Droughts Create Stress

Droughts happen somewhere in the country every year and climate change has the potential to increase stress on water resources. To create a more sustainable water future, cities and states are coming together to encourage water conservation and efficiency as a way to reduce demand.

- Understand how to save water during droughts

Less Water Affects the Environment

Image of lake and mountains

When reservoir water levels get lower and ground water tables drop, water supplies, human health, and the environment are put at serious risk. For example, lower water levels can contribute to higher concentrations of natural and human pollutants.

Less water going down the drain means more water available in the lakes, rivers and streams that we use for recreation and wildlife uses to survive. Using water more efficiently helps maintain supplies at safe levels, protecting human health and the environment.

Water suppliers are doing their part to help their customers save water with programs like WaterSense and are also working to improve water efficiency for their own operations.

- Water efficiency strategies

LAST UPDATED ON FEBRUARY 5, 2018



[WATER INFO](#) ▾ [KID'S PLACE](#) ▾ [EVENTS](#) [BLOG](#)



WATER USE STATISTICS

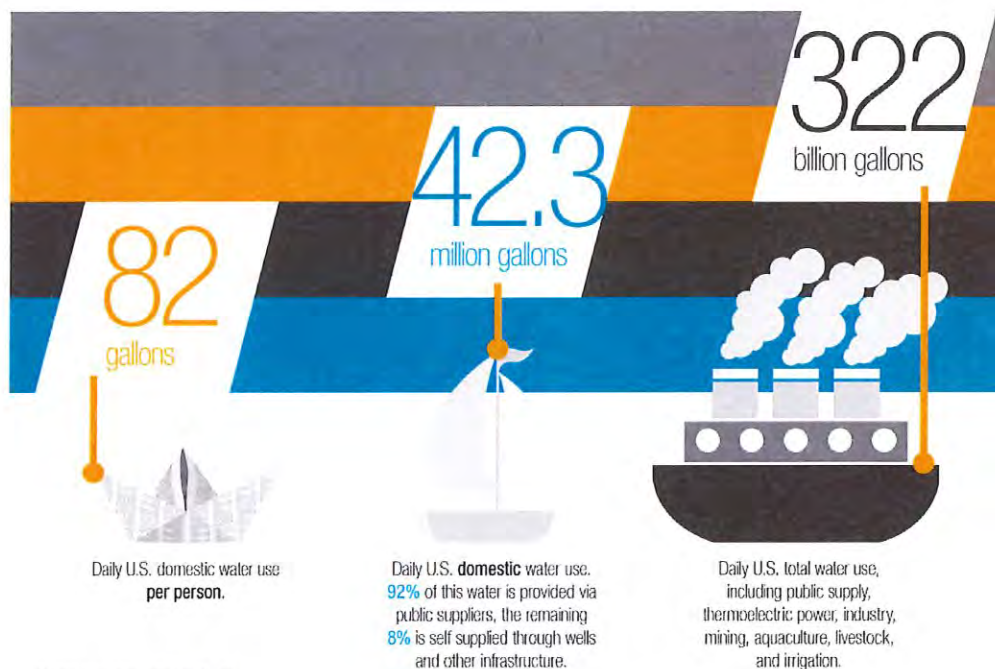
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Questions About
Water +

Water Conservation +

- ▣ [Drip Calculator](#)
- ▣ [Drought](#)
- ▣ [Household Leaks](#)
- ▣ [Water Use Statistics](#)

What's In My
Water? +



© American Water Works Association
Source: USGS 2015 Water Census

Source: [USGS 2015 Water Census](#)

For additional information about how this water is used, please visit the [USGS's Q&A on typical water use at home](#).

By installing more efficient water fixtures and regularly checking for leaks, households can reduce daily indoor per capita water use to about 45.2 gallons per day. Here's how it breaks down for households using conservation measures:

Type of Use	Gallons per Capita	Percentage of Total Daily Use
-------------	--------------------	-------------------------------

Water Use Statistics

Showers	8.8	19.5%
Clothes Washers	10.0	22.1%
Toilets	8.2	18.0%
Dishwashers	0.7	1.5%
Baths	1.2	2.7%
Leaks	4.0	8.8%
Faucets	10.8	23.9%
Other Domestic Uses	1.6	3.4%

Source: [Handbook of Water Use and Conservation](#), Amy Vickers

If all U.S. households installed water-saving features, water use would decrease by 30 percent, saving an estimated 5.4 billion gallons per day. This would result in dollar-volume savings of \$11.3 million per day or more than \$4 billion per year.

Water-conserving fixtures installed in U.S. households in 1998 alone have saved 44 million gallons of water every day, resulting in total dollar-value savings of more than \$33.6 million per year.

Estimated Use of Water in the United States in 2015

By Cheryl A. Dieter, Molly A. Maupin, Rodney R. Caldwell, Melissa A. Harris, Tamara I. Ivahnenko, John K. Lovelace, Nancy L. Barber, and Kristin S. Linsey

Abstract

Water use in the United States in 2015 was estimated to be about 322 billion gallons per day (Bgal/d), which was 9 percent less than in 2010. The 2015 estimates put total withdrawals at the lowest level since before 1970, following the same overall trend of decreasing total withdrawals observed from 2005 to 2010. Freshwater withdrawals were 281 Bgal/d, or 87 percent of total withdrawals, and saline-water withdrawals were 41.0 Bgal/d, or 13 percent of total withdrawals. Fresh surface-water withdrawals (198 Bgal/d) were 14 percent less than in 2010, and fresh groundwater withdrawals (82.3 Bgal/day) were about 8 percent greater than in 2010. Saline surface-water withdrawals were 38.6 Bgal/d, or 14 percent less than in 2010. Total saline groundwater withdrawals in 2015 were 2.34 Bgal/d, mostly for mining use.

Thermoelectric power and irrigation remained the two largest uses of water in 2015, and total withdrawals decreased for thermoelectric power but increased for irrigation. Withdrawals in 2015 for thermoelectric power were 18 percent less and withdrawals for irrigation were 2 percent greater than in 2010. Similarly, other uses showed reductions compared to 2010, specifically public supply (–7 percent), self-supplied domestic (–8 percent), self-supplied industrial (–9 percent), and aquaculture (–16 percent). In addition to irrigation (2 percent), mining (1 percent) reported larger withdrawals in 2015 than in 2010. Livestock withdrawals remained essentially the same in 2015 compared to 2010 (0 percent change). Thermoelectric power, irrigation, and public-supply withdrawals accounted for 90 percent of total withdrawals in 2015.

Withdrawals for thermoelectric power were 133 Bgal/d in 2015 and represented the lowest levels since before 1970. Surface-water withdrawals accounted for more than 99 percent of total thermoelectric-power withdrawals, and 72 percent of those surface-water withdrawals were from freshwater sources. Saline surface-water withdrawals for thermoelectric power accounted for 97 percent of total saline surface-water withdrawals for all uses. Thermoelectric-power withdrawals accounted for 41 percent of total withdrawals for all uses, and freshwater withdrawals for thermoelectric power accounted for 34 percent of the total freshwater withdrawals

for all uses. Total consumptive use for thermoelectric power was 4.31 Bgal/d in 2015 or 3 percent of the total thermoelectric-power withdrawals.

Irrigation withdrawals were 118 Bgal/d in 2015, an increase of 2 percent from 2010 (116 Bgal/d), but were approximately equal to withdrawals estimated in the 1960s. Irrigation withdrawals, all freshwater, accounted for 42 percent of total freshwater withdrawals for all uses and 64 percent of total freshwater withdrawals for all uses excluding thermoelectric power. Surface-water withdrawals (60.9 Bgal/d) accounted for 52 percent of the total irrigation withdrawals, or about 8 percent less than in 2010. Groundwater withdrawals for irrigation were 57.2 Bgal/d in 2015, about 16 percent more than in 2010. About 63,500 thousand acres (or 63.5 million acres) were irrigated in 2015, an increase from 2010 of about 1,130 thousand acres (2 percent). The number of acres irrigated using sprinkler and microirrigation systems accounted for 63 percent of the total irrigated lands in 2015. Total consumptive use for irrigation was 73.2 Bgal/d in 2015 or 62 percent of the total use (withdrawals and reclaimed wastewater).

Public-supply withdrawals in 2015 were 39.0 Bgal/d, or 7 percent less than in 2010, continuing the declines observed from 2005 to 2010. Total population in the United States increased from 312.6 million people in 2010 to 325.0 million people in 2015, an increase of 4 percent. Public-supply withdrawals accounted for 14 percent of the total freshwater withdrawals for all uses and 21 percent of freshwater withdrawals for all uses, excluding thermoelectric power. The number of people that received potable water from public-supply facilities in 2015 was 283 million, or about 87 percent of the total United States population. This percentage is 1 percent greater than in 2010. Self-supplied domestic withdrawals were 3.26 Bgal/d, or 8 percent less than in 2010. More than 98 percent of the self-supplied domestic withdrawals were from groundwater sources.

Self-supplied industrial withdrawals were 14.8 Bgal/d in 2015, a 9 percent decline from 2010, continuing the downward trend since the peak of 47 Bgal/d in 1970. Total self-supplied industrial withdrawals were 5 percent of total withdrawals for all uses and 8 percent of total withdrawals for all uses,

20 Estimated Use of Water in the United States in 2015

Table 5. Public-supply water withdrawals, 2015.

[Values may not sum to totals because of independent rounding. Values for public supply include fresh and saline-water withdrawals. Abbreviations: Mgal/d, million gallons per day; —, not estimated; n/a, not applicable]

State	Population (thousands)			Withdrawals (Mgal/d)			Public-supply deliveries		
	Total	Served by public supply		By source		Total	Domestic use (Mgal/d)	Thermoelectric-power generation use (Mgal/d)	All other uses and system losses (Mgal/d)
		Population	Population (percent)	Ground-water	Surface water				
Alabama.....	4,860	4,320	89	272	490	762	320	—	441
Alaska.....	738	550	74	37.8	61.4	99.2	61.6	0.60	37.0
Arizona.....	6,830	6,610	97	569	626	1,200	963	0.50	231
Arkansas.....	2,980	2,830	95	94.2	269	363	252	—	111
California.....	39,100	37,700	96	2,370	2,780	5,150	3,230	38.9	1,880
Colorado.....	5,460	5,170	95	109	735	844	637	13.7	194
Connecticut.....	3,590	2,730	76	43.0	197	240	96.0	4.65	139
Delaware.....	946	764	81	45.8	40.6	86.4	61.1	—	25.2
District of Columbia ...	672	672	100	0	0	0	44.8	0	n/a
Florida.....	20,300	17,800	88	2,080	307	2,380	1,500	8.88	874
Georgia.....	10,200	8,700	85	231	839	1,070	661	—	409
Hawaii.....	1,430	1,380	96	252	14.6	267	198	—	68.9
Idaho.....	1,650	1,260	76	247	29.2	276	234	—	41.7
Illinois.....	12,900	11,700	91	367	1,110	1,480	937	—	539
Indiana.....	6,620	4,940	75	339	288	628	376	—	252
Iowa.....	3,120	2,630	84	314	76.8	390	171	0.16	219
Kansas.....	2,910	2,760	95	137	214	351	175	0.25	176
Kentucky.....	4,430	3,980	90	87.4	465	553	279	—	274
Louisiana.....	4,670	4,180	89	354	355	709	497	—	212
Maine.....	1,330	669	50	27.5	57.5	85.0	35.5	2.05	47.4
Maryland.....	6,010	4,580	76	93.9	656	750	320	—	430
Massachusetts.....	6,790	6,180	91	199	449	648	347	47.0	254
Michigan.....	9,920	7,330	74	209	821	1,030	481	—	550
Minnesota.....	5,490	4,310	79	336	179	515	236	—	279
Mississippi.....	2,990	2,560	85	347	53.4	400	251	0.01	149
Missouri.....	6,080	5,260	86	282	516	797	482	1.64	313
Montana.....	1,030	728	71	83.3	69.9	153	86.2	—	67.0
Nebraska.....	1,900	1,720	91	218	57.2	275	129	—	146
Nevada.....	2,890	2,700	93	142	390	531	330	0.49	201
New Hampshire.....	1,330	833	63	35.4	60.1	95.5	50.0	0.53	45.0
New Jersey.....	8,960	7,990	89	379	797	1,180	626	0.71	549
New Mexico.....	2,090	1,790	86	184	78.3	262	145	0.26	116
New York.....	19,800	17,300	87	614	1,810	2,420	1,230	17.1	1,180
North Carolina.....	10,000	7,640	76	158	780	938	534	8.33	395
North Dakota.....	757	711	94	35.4	48.8	84.2	56.8	0.05	27.3
Ohio.....	11,600	9,750	84	450	857	1,310	589	4.19	713
Oklahoma.....	3,910	3,550	91	102	509	611	247	6.96	357
Oregon.....	4,030	3,400	84	147	420	567	355	4.53	207
Pennsylvania.....	12,800	9,330	73	227	1,160	1,390	522	—	869
Rhode Island.....	1,060	943	89	13.8	83.7	97.5	56.0	1.44	40.0
South Carolina.....	4,900	3,710	76	115	518	633	371	3.93	258
South Dakota.....	881	752	85	48.0	24.0	72.0	43.7	—	28.2
Tennessee.....	6,600	6,010	91	256	594	850	486	—	363
Texas.....	27,500	26,200	95	1,170	1,710	2,890	2,120	48.3	712
Utah.....	3,000	2,930	98	359	267	627	496	1.33	129
Vermont.....	626	382	61	13.9	28.8	42.7	16.6	—	26.1
Virginia.....	8,380	6,820	81	82.8	614	697	546	0.29	151
Washington.....	7,170	6,150	86	521	345	867	631	1.63	234
West Virginia.....	1,840	1,450	79	37.7	147	185	116	0.62	68.7
Wisconsin.....	5,770	4,170	72	265	214	479	240	0.23	239
Wyoming.....	586	467	80	54.5	46.8	101	82.3	—	19.0
Puerto Rico.....	3,470	3,470	100	66.6	510	576	338	0.97	237
U.S. Virgin Islands.....	104	51.9	50	0.91	3.36	4.27	2.74	—	1.53
TOTAL	325,000	283,000	87	15,200	23,800	39,000	23,300	220	15,500

Domestic

3,260 million gallons per day (self-supplied)
23,300 million gallons per day (public-supply deliveries)

Domestic water use includes indoor and outdoor uses at residences. Common indoor water uses are drinking, food preparation, washing clothes and dishes, bathing, and flushing toilets. Common outdoor uses are watering lawns and gardens or maintaining pools, ponds, or other landscape features in a domestic environment. Domestic water is either self-supplied or provided by public suppliers. Water for self-supplied domestic use is typically withdrawn from a private source, such as a well, or captured as rainwater in a cistern. Domestic deliveries are provided to homes by public suppliers. The proportion of total domestic water use from public-supply deliveries (88 percent) and self-supplied domestic withdrawals (12 percent) in the United States is shown in figure 5.

The estimated self-supplied and public-supplied populations in each State are listed in table 6, as well as the amounts used by each segment of the population for domestic needs and the respective per capita use in gallons per day (gallons per capita per day, GPCD). Domestic self-supplied withdrawals and public-supplied deliveries are combined in table 6 to show the total estimated domestic use in 2015 and the total per capita use in gallons per day calculated for all domestic use.

An estimated 42.5 million people in the United States, or 13 percent of the population, provided their own water for domestic use in 2015. These self-supplied withdrawals were estimated to be 3,260 Mgal/d (3,650 thousand acre-ft/yr), or about 1 percent of total withdrawals for all uses in 2015.

Nearly all (98 percent) of these self-supplied withdrawals were from fresh groundwater sources. Self-supplied domestic withdrawals are rarely metered or reported; typically, this usage is calculated by multiplying an estimate of the population not served by public supply by a coefficient for daily per capita use. For some States, these coefficients were county-specific averages derived from observed residential water use and population estimates in nearby areas served by public suppliers. Other States used the same coefficient for all counties, commonly one used by State regulatory or planning agencies.

Self-supplied domestic per capita use ranged from 36 GPCD in Connecticut to 186 GPCD in Nevada. Generally, per capita use is least in the Northern and Eastern States and greatest in the Mountain and Western States where outdoor watering is more common. The national average self-supplied domestic per capita use in 2015 was 77 GPCD (table 6).

Most people in the United States used water provided by public suppliers. Domestic deliveries by public water suppliers totaled 23,300 Mgal/d in 2015 and represented water provided to 283 million people at single-family and multifamily dwellings. The District of Columbia and Puerto Rico have populations that are almost entirely supplied by public-supply systems. The District of Columbia had zero self-supplied domestic withdrawals estimated in 2015, and less than 1 Mgal/d was estimated for Puerto Rico in 2015. Per capita water use for domestic deliveries ranged from 35 GPCD in Connecticut to 186 GPCD in Idaho. The national average was 82 GPCD for public-supplied domestic water use in 2015. This per capita usage is less than the rate of 101 GPCD observed in 1995, 100 GPCD in 2005, and 88 GPCD in 2010. Domestic deliveries from public supply were not compiled nationally in 2000.

Combined self-supplied domestic withdrawals and public-supply deliveries totaled 26,600 Mgal/d in 2015, with 23,300 Mgal/d from public-supply deliveries (88 percent) and 3,260 Mgal/d from self-supplied withdrawals (12 percent), and the national average per capita use was 82 GPCD. The corresponding average per capita use for total domestic use in 2005 was 98 GPCD, and in 2010, it was 87 GPCD. The geographic distribution of total domestic water use by State is shown in figure 6A. The self-supplied domestic population in each State, in thousands of people and as a percentage of total State population, is shown in figure 6B. Self-supplied domestic populations were largest in Pennsylvania, Michigan, and New York. States where nearly one-half the population has a self-supplied water source were U.S. Virgin Islands and Maine.

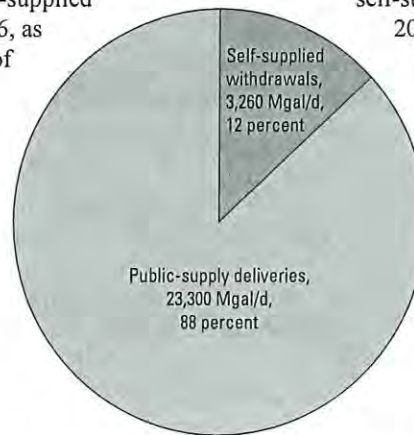


Figure 5. Total domestic water use from public-supply deliveries and self-supplied withdrawals, 2015. (Mgal/d, million gallons per day)



Persons per household, 2014-2018

2

QuickFacts

Richland County, South Carolina; United States

QuickFacts provides statistics for all states and counties, and for cities and towns with a *population of 5,000 or more*.

able

PEOPLE

Population

Population estimates, July 1, 2019, (V2019)	NA	328,239,523
Population estimates, July 1, 2018, (V2018)	414,576	327,167,434
Population estimates base, April 1, 2010, (V2019)	NA	308,758,105
Population estimates base, April 1, 2010, (V2018)	384,450	308,758,105
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	NA	6.3%
Population, percent change - April 1, 2010 (estimates base) to July 1, 2018, (V2018)	7.8%	6.0%
Population, Census, April 1, 2010	384,504	308,745,538

Age and Sex

Persons under 5 years, percent	▲ 5.8%	▲ 6.1%
Persons under 18 years, percent	▲ 21.4%	▲ 22.4%
Persons 65 years and over, percent	▲ 12.7%	▲ 16.0%
Female persons, percent	▲ 51.7%	▲ 50.8%

Race and Hispanic Origin

White alone, percent	▲ 45.9%	▲ 76.5%
Black or African American alone, percent (a)	▲ 48.2%	▲ 13.4%
American Indian and Alaska Native alone, percent (a)	▲ 0.4%	▲ 1.3%
Asian alone, percent (a)	▲ 2.9%	▲ 5.9%
Native Hawaiian and Other Pacific Islander alone, percent (a)	▲ 0.1%	▲ 0.2%
Two or More Races, percent	▲ 2.4%	▲ 2.7%
Hispanic or Latino, percent (b)	▲ 5.2%	▲ 18.3%
White alone, not Hispanic or Latino, percent	▲ 42.1%	▲ 60.4%

Population Characteristics

Veterans, 2014-2018	31,545	18,611,432
Foreign born persons, percent, 2014-2018	5.5%	13.5%

Housing

Housing units, July 1, 2018, (V2018)	175,070	138,537,078
Owner-occupied housing unit rate, 2014-2018	58.8%	63.8%
Median value of owner-occupied housing units, 2014-2018	\$158,200	\$204,900
Median selected monthly owner costs -with a mortgage, 2014-2018	\$1,294	\$1,558
Median selected monthly owner costs -without a mortgage, 2014-2018	\$441	\$490
Median gross rent, 2014-2018	\$952	\$1,023
Building permits, 2018	2,644	1,328,827

Families & Living Arrangements

Households, 2014-2018	150,309	119,730,128
Persons per household, 2014-2018	2.51	2.63
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	77.5%	85.5%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	8.5%	21.5%

Computer and Internet Use

Households with a computer, percent, 2014-2018	91.5%	88.8%
Households with a broadband Internet subscription, percent, 2014-2018	79.9%	80.4%

Education

High school graduate or higher, percent of persons age 25 years+, 2014-2018	91.1%	87.7%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	37.7%	31.5%

Health

With a disability, under age 65 years, percent, 2014-2018	9.9%	8.6%
	▲ 11.0%	▲ 10.0%

Persons without health insurance, under age 65 years, percent

Economy

All Topics

Richland County,
South Carolina

In civilian labor force, total, percent of population age 16 years and over, 2014-2018	62.0%	58.2%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	62.0%	58.2%
Total accommodation and food services sales, 2012 (\$1,000) (c)	862,224	708,138,598
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	3,202,506	2,040,441,203
Total manufacturers shipments, 2012 (\$1,000) (c)	5,374,991	5,696,729,632
Total merchant wholesaler sales, 2012 (\$1,000) (c)	4,191,339	5,208,023,478
Total retail sales, 2012 (\$1,000) (c)	4,780,665	4,219,821,871
Total retail sales per capita, 2012 (c)	\$12,139	\$13,443
Transportation		
Mean travel time to work (minutes), workers age 16 years+, 2014-2018	21.7	26.6
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	\$53,922	\$60,293
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$29,010	\$32,621
Persons in poverty, percent	▲ 16.7%	▲ 11.8%

 **BUSINESSES**

Businesses

Total employer establishments, 2017	9,065	7,860,674
Total employment, 2017	163,353	128,591,812
Total annual payroll, 2017 (\$1,000)	7,326,352	6,725,346,754
Total employment, percent change, 2016-2017	1.1%	1.5%
Total nonemployer establishments, 2017	28,354	25,701,671
All firms, 2012	31,595	27,626,360
Men-owned firms, 2012	16,333	14,844,597
Women-owned firms, 2012	12,297	9,878,397
Minority-owned firms, 2012	11,676	7,952,386
Nonminority-owned firms, 2012	18,645	18,987,918
Veteran-owned firms, 2012	4,010	2,521,682
Nonveteran-owned firms, 2012	25,680	24,070,685

 **GEOGRAPHY**

Geography

Population per square mile, 2010	507.9	87.4
Land area in square miles, 2010	757.07	3,531,905.43
FIPS Code	45079	00

About datasets used in this table

All Topics

Richland County,
South Carolina

Value Notes

Persons per household, 2014-2018

2

▲ Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info icon to row in TABLE view to learn about sampling error.

The vintage year (e.g., V2019) refers to the final year of the series (2010 thru 2019). *Different vintage years of estimates are not comparable.*

Fact Notes

- (a) Includes persons reporting only one race
- (b) Hispanics may be of any race, so also are included in applicable race categories
- (c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

Value Flags

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper open ended distribution.
- D Suppressed to avoid disclosure of confidential information
- F Fewer than 25 firms
- FN Footnote on this item in place of data
- N Data for this geographic area cannot be displayed because the number of sample cases is too small.
- NA Not available
- S Suppressed; does not meet publication standards
- X Not applicable
- Z Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

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Current Sewer Rates as of March 1, 2020 for Basic Residential Service

COMPANY	BASIC FACILITIES CHARGE	PER 1,000 GALLONS	DATE ORDER APPROVED
Blue Granite Water Company	\$65.77	FLAT RATE	2015-06-15
Condor Environmental, Inc.	See PSC Order	FLAT RATE	2015-06-15
CUC, Inc.	\$51.60/bimonthly	\$6.35	2015-06-15
Daufuskie Island Utility Co., Inc.	\$201.65/qtr	Haig Point - \$2.14	2015-06-15
JACABB Utilities, Inc.	Varies from \$30.50 to \$82.82	FLAT RATE	2015-06-15
Kiawah Island Utilities, Inc.	\$28.00	\$0.74	2015-06-15
Lakewood Utilities, LLC	\$5.50	\$1.25	2015-06-15
Lake Wylie MHP Utilities, LLC	\$27.00	FLAT RATE	2015-06-15
Ocean Lakes Utilities, Inc.	\$3.27	\$3.10	2015-06-15
Palmetto Utilities, Inc.	\$52.10	FLAT RATE	2015-06-15
Palmetto Wastewater Reclamation, LLC.	\$37.92	FLAT RATE	2015-06-15
QH Lagoon, LLC	\$35.00	FLAT RATE	2015-06-15
Scenic Lake Park WWTP	\$30.00	FLAT RATE	2015-06-15
South Carolina Water Utilities, Inc. f/k/a Harbor Island Utilities, Inc.	\$59.24	FLAT RATE	2015-06-15
f/k/a T.J. Barnwell Utility, Inc.	\$53.00	FLAT RATE	2015-06-15
Synergy Utilities, LP	\$43.00	FLAT RATE	2015-06-15
Total Environmental Solutions. Inc.	\$40.22	FLAT RATE	2015-06-15